Poor internet for poor people?

Why Canada needs better and more affordable mobile services for everyone

A report prepared in consideration of:

Telecom Notice of Consultation CRTC 2018-98,
"Call for comments—Lower-cost data-only plans for mobile wireless services"

by

Benjamin Klass, MA, BA & Dwayne Winseck, PhD

For

The Consumers' Association of Canada (Manitoba Branch)

June, 2018

Executive summary

We have been asked by the Public Interest Law Centre (PILC), on behalf of the Manitoba Branch of the Consumers' Association of Canada (CAC Manitoba) to prepare a report in response to Telecom Public Notice CRTC 2018-98, "Call for comments—Lower-cost data-only plans for mobile wireless services". Specifically, PILC requested that we assess the Canadian Radio-television and Telecommunications Commission (CRTC)'s current initiative in the context of the broader trajectory of mobile policy development, with particular regard to the issue of affordability. We note that our agreement with PILC stipulates that our "duty in providing assistance and giving evidence is to help the CRTC" and that "[t]his duty overrides any obligation to the Public Interest Law Centre and its client(s)."

In this report, we begin by providing a brief overview of Canadian communications policy development, focusing in particular on issues in the mobile sector and their relation to the present proceeding. Over the past decade, there has been broad and increasing recognition that mobile wireless prices in Canada are high, and that service remains unaffordable for too many people. Significant efforts have been undertaken by various levels of government to address this persistent problem, but progress has been uneven at best. In our view, it is crucial for government to maintain its focus on solving this market failure, and new and innovative approaches will be required if lasting solutions are to be achieved.

We then examine issues related to availability of and access to mobile services alongside considerations of adoption and affordability. While Canadian wireless networks perform above average with respect to coverage and speed, their performance is not remarkably better than what can be found in comparable countries. In other words, Canadian wireless networks perform well, but assertions that they are "world-leading" are not supported by the data.[1] We note that the availability of quality mobile networks is of little benefit to people who cannot afford to use them.

The report conducts an extended, fine grained analysis of mobile adoption and service pricing, which includes an examination of Canada's performance in international comparisons and presentation and discussion of stand-alone figures for Canada where appropriate. We find that adoption of mobile services for smartphones and other broadband applications in Canada is well below the average in comparable developed nations. Looking at adoption levels by demographics and geography within Canada, the data show that, while high-income earners almost universally adopt mobile services, lower income users are dramatically less likely to subscribe to a mobile service. This is true whether viewed at the national- or provincial level.

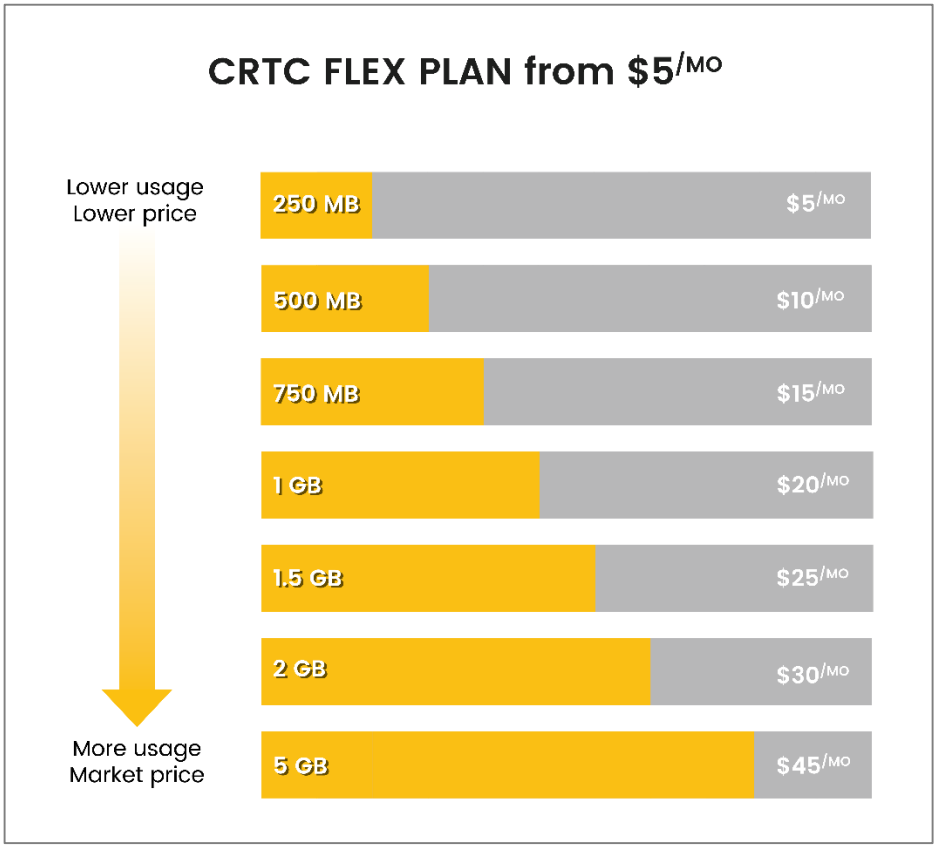
Our survey of numerous studies comparing international mobile service pricing shows that Canadian mobile service prices are uniformly amongst the highest in developed nations, and sometimes remarkably higher than those found in comparable countries. Indeed, for certain service offerings, Canadian prices are the highest among comparable countries. To the extent that mobile prices are on the decline in Canada and elsewhere, Canadian mobile service prices have declined by a much lower margin than they have in comparable countries. The connection between high prices and low adoption—in other words, that high prices are a barrier to affordability--is confirmed by scholarship on mobile affordability. Indeed, a 2016 report on telecommunications affordability commissioned by the CRTC found that "[i]ndicators of price levels, range of price/quality combinations, penetration rates of

[1] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para 23.

advanced technologies and other high-level market outcome measures can offer informative signals about affordability as an economic constraint on access, use, and the development of the broader ICT sector.[2] As our report shows, the signals being sent by the Canadian mobile market are clear: mobile services remain unaffordable for too many people.

We then critically analyse claims that Canada's high wireless prices are justified on the basis of quality or the cost of providing service. Contrary to the assertion that high prices for mobile services are justified by relatively high Canadian network investment, we provide evidence showing that this is not the case. Our analysis shows that the prices carriers are proposing to charge for "lower-cost data-only" plans are drastically higher than their associated cost of delivering mobile data—the carriers' plans feature an astonishing markup of between 255 to 350 percent.

Finally, we provide recommendations about how best to proceed to address Canada's problem with low mobile adoption and unaffordable services. We recommend that the CRTC reject the carriers' initial proposals, and instead adopt a flexible, affordable, and sustainable model that we call the "CRTC Flex plan."



[2] Rajabiun, R., Ellis, D., & Middleton, C. (2016). "Literature review: Affordability of Communications services", Report commissioned by the Canadian Radio-television and Telecommunications Commission, p. 2, emphasis added. Available at: https://www.ryerson.ca/~cmiddlet/ourresearch/lit-review-for-crtc-2016-affordability-rajabiun-ellis-middleton.pdf

The CRTC flex plan that we are proposing is an elegant solution to the problem that the Commission is seeking to address in this proceeding, namely that people who need to access smaller amounts of mobile data cannot afford to do so at current market rates. The plan provides a small amount of data at an affordable entry level price of $5—the same price at which national carriers have offered similar plans in the past. Much like existing "flex plans" offered by the national carriers, the CRTC flex plan's pricing scales with increasing network use, converging with market prices for subscribers who use the network at levels greater than the Canadian average.

The advantage of this plan is that it provides smaller amounts of mobile data at affordable rates, while at the same time ensuring that people who require larger amounts of data pay existing market rates. Even at the lower combinations of price and usage, this plan is designed to provide a return to carriers that is more than remunerative with respect to the cost of building and maintaining their respective mobile communication networks.

Our report concludes by providing additional specific recommendations regarding the terms and conditions upon which "lower-cost data-only" plans should be offered, and by highlighting the need for continued efforts to ensure that lasting solutions to Canada's problems in the mobile wireless market will be achieved.

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Introduction

We have been asked to prepare a report by the Public Interest Law Centre (PILC) in response to Telecom Public Notice CRTC 2018-98, "Call for comments—Lower-cost data-only plans for mobile wireless services". Specifically, PILC requested that we assess the CRTC's current initiative in the context of the broader trajectory of mobile policy development, with particular regard to the issue of affordability. We note that our agreement with PILC stipulates that our "duty in providing assistance and giving evidence is to help the CRTC" and that "[t]his duty overrides any obligation to the Public Interest Law Centre and its client(s)."

This report has been prepared by Benjamin Klass and Dr. Dwayne Winseck.

Mr. Klass is a PhD student at Carleton University's School of Journalism and Communication. During his time as a PhD student, Mr. Klass has been invited to deliver lectures on the topic of telecommunications economics, policy, regulation, and law at universities across Canada, including Carleton University, the University of Manitoba, University of Winnipeg, York University, the University of Ottawa, and the University of Alberta.

In 2012, Mr. Klass began work with the Canadian Media Concentration Research Project (CMCRP), which is directed by Dr. Dwayne Winseck. [3] As a research assistant, Mr. Klass was responsible for collecting, organizing, and analysing information on Canadian telecommunications markets. At present, Mr. Klass continues his work for the CMCRP as senior research associate, under the direction of Dr. Winseck. In 2015, Mr. Klass completed a Master of Arts degree at the University of Manitoba, for which he produced a thesis paper entitled "Mobile Wireless in Canada: Policy, Problems, and Progress", which presented an historical and contemporary analysis of the political economy of mobile communications in Canada.

Building on his ongoing research, Mr. Klass has actively participated as an interested citizen and a scholar in the sphere of Canadian communications policymaking for more than five years. He has participated in numerous CRTC and Competition Bureau proceedings related to broadcasting and telecommunications. This participation has included the development and presentation of numerous scholarly reports, as an individual as well as together with other scholars and groups such as the CMCRP. Mr. Klass has also appeared in person before several Commission oral hearings. A full list of these reports and presentations can be found in Mr. Klass's curriculum vitae, appended to this report below.

From 2013-2016, Mr. Klass initiated and pursued an application before the CRTC and later the Federal Court of Appeal which ultimately resulted in the prohibition of Bell Mobility's discriminatory zero-rated pricing for its "mobile TV" application. This decision later contributed to the development of an over-arching CRTC policy which prohibits on a broad basis the use of content-specific discriminatory pricing in the Canadian telecommunications market.[4]

Outside of his position as a PhD student at Carleton, Mr. Klass acts in a volunteer capacity as a research associate for the First Mile Connectivity Consortium (FMCC), a registered national not-for-profit research and advocacy organization whose members include First Nations community-based telecommunications organizations serving remote and rural communities. The FMCC is dedicated to engaging in the

[3] Canadian Media Concentration Research Project. Available at:: http://www.cmcrp.org
[4] CRTC (2017). Telecom Regulatory Policy CRTC 2017-104, "Framework for assessing the differential pricing practices of internet service providers". Available at: https://crtc.gc.ca/eng/archive/2017/2017-104.htm

development of evidence-based policy related to broadband infrastructure, digital services and technology adoption in remote and rural communities.[5] Mr. Klass also fills a voluntary position on the policy committee of the Internet Society Canada Chapter, an organization which develops positions on Canadian legislation that affects the affordability, accessibility, fairness and security of the Internet.[6]

Mr. Klass's work has been featured in media ranging from local stations and newspapers to national print and broadcast outlets, and his views have been solicited by print, online, and broadcast media such as the CBC, Globe & Mail, Winnipeg Free Press, Financial Post, Mobilesyrup, the Wire Report, and Toronto Star.

Mr. Klass has also occasionally acted as a consultant, providing communications research, analysis, and expert opinion to law firms, consumer groups, and advocacy organizations.

Dr. Winseck is Professor at the School of Journalism and Communication, with a cross-appointment at the Institute of Political Economy, Carleton University. He has taught courses or given lectures and workshops in Argentina, China, Denmark, Mexico, Turkey, the United Kingdom, the United States and Uruguay.

His main research interests include the political economy of telecommunications, the internet and media as well as communication history and theory. He is also director of the Canadian Media Concentration Research Project and was the lead Canadian researcher in the International Media Concentration Research Project between 2009 and 2016. His research, data and views on the telecommunications, internet and media industries, as well as the policy and regulatory issues affecting them, are well known and have been solicited or cited widely in the scholarly literature, by journalists across Canada and in other countries including the New York Times and The Guardian, as well as by the Parliament of Canada, Canadian Senate, Department of Canadian Heritage, the Canadian Radio-television and Telecommunications Commission, the Competition Bureau, the World Trade Organization and the International Telecommunications Union, amongst others.

In 2012, Dwayne was a keynote Speaker at New Zealand Commerce Commission's The Future with High-Speed Broadband Conference, and he is currently serving as an expert adviser to the Independent Communications Authority of South Africa. He is also a regular participant in regulatory and policy proceedings in Canada convened by the CRTC, the Competition Bureau and Parliament of Canada committees. Dwayne was also a columnist the Globe and Mail, and maintains a well-regarded blog, Mediamorphis[7] and another for the Canadian Media Concentration Research Project. His co-authored book with Robert Pike *Communication and Empire: Media, Markets and Globalization, 1860-1930* won the Canadian Communication Association's book-of-the-year prize in 2008. He is also co-editor, with Dal Yong Jin, of *Political Economies of the Media* (2011) and several other edited and sole-authored books.

For further information regarding the authors' experience and qualifications, please see our curricula vitae, appended to the end of this report.

In this report, we begin by providing a brief overview of Canadian communications policy development, focusing in particular on issues in the mobile sector and their relation to the present proceeding. We

[5] First Mile Connectivity Consortium (n.d.). Website. Available at: http://firstmile.ca/fmcc-2/
[6] Internet Society Canada Chapter (n.d.). Website. Available at: https://internetsociety.ca/what-we-do/
[7] Winseck, D. "Mediamorphis" (Blog). Available at: http://dwmw.wordpress.org

then examine issues related to availability of and access to mobile services alongside considerations of adoption and affordability. We conduct an extended, fine grained analysis of mobile adoption and service pricing, which includes an examination of Canada's performance in international comparisons and presentation and discussion of stand-alone figures for Canada where appropriate. We then critically analyse claims that Canada's high wireless prices are justified on the basis of quality or the cost of providing service. This is followed by an examination of the "lower-cost data-only" plans that have been proposed by the national carriers as requested by the Commission. Finally, we provide recommendations about how best to proceed in order to address Canada's problem with low mobile adoption and unaffordable services.

Policy Background

The present proceeding represents just the latest in a long line of mobile wireless policy developments, all of which have been aimed toward improving the state of mobile wireless telecommunications markets in Canada. For at least the last decade, various branches of government across numerous levels have undertaken sustained efforts to bring about improvements in mobile pricing, availability, and quality, among other aspects of this important sector of society. It is true that strides have been made, as industry, government, and the public have been collectively engaged in a common enterprise to ensure that Canada's mobile wireless networks meet the needs of people across the country, consistent with the objectives set forward in the *Telecommunications Act*.[8]

The auction for advanced wireless services (AWS) spectrum that took place over 10 years ago set the stage for new entry into a market widely perceived as unresponsive and oligopolistic. Since that time, new entrants and regional providers have made noticeable inroads, although progress has been uneven at the best of times. Industry Canada, now known as Innovation, Science and Economic Development (ISED), has remained engaged with the issues, and continues to release additional spectrum in order to meet growing demand and to shore up the competitiveness of the sector. The CRTC has played a substantial role as well. The Commission has extended the application of modern common carriage rules—known colloquially as "network neutrality"—to mobile networks; instituted a sector-wide code of conduct (the "Wireless Code") to inform and protect consumers; it has established the regulation of wholesale roaming rates in furtherance of improved competition between providers; and it has articulated a vision of universal service fit for the twenty-first century, amongst numerous other initiatives.[9]

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[8] The *Telecommunications Act*'s policy objectives are found in §7 of the *Act.* These include, but are not limited to:
(a) to facilitate the orderly development throughout Canada of a telecommunications system that serves to safeguard, enrich and strengthen the social and economic fabric of Canada and its regions;
(b) to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada;
(c) to enhance the efficiency and competitiveness, at the national and international levels, of Canadian telecommunications;
[…]
(f) to foster increased reliance on market forces for the provision of telecommunications services and to ensure that regulation, where required, is efficient and effective;
[…]
(h) to respond to the economic and social requirements of users of telecommunications services;

[9] For greater detail about these and other relevant policy developments, see: Canadian Media Concentration Research Project (n.d.) "Policy interventions". Available at: http://www.cmcrp.org/policy-interventions/ In particular: Winseck, D. (2014). "Mobile Wireless in Canada:

During this time, the industry has continued to invest in modern communication networks throughout Canada, and has contributed substantially to expanding the range of advanced technologies that are increasingly finding their way into the hands, homes, and workplaces of people across the country. However, the largest and most influential companies involved in the communication sector have often sought to stop, obstruct, or reverse measures intended to serve the public interest, such as the ones described above.

Indeed, a central theme in the present proceeding is the contrast between the protestations of the dominant carriers that 'all is well in the market' versus repeated findings by government that they are not. Telus, for instance, opposes the Commission's efforts to improve mobile affordability, putting forward the argument that "[t]he Commission has repeatedly found that the Canadian market for retail wireless services has sufficient competition to protect the interests of users."[10] Yet, over the past five years, branches of government—up to and including Canada's Governor General—have repeatedly reached the opposite conclusion.[11] As recently as 2017, Canada's federal Competition Bureau found after a nine-month investigation that "as a result of coordinated behaviour among Bell, TELUS, and Rogers, mobile wireless prices in Canada are higher in regions where Bell, TELUS and Rogers do not face competition from a strong regional competitor."[12] These findings (as well as a slew of other similar ones) are conspicuously absent from the carriers' presentations to the Commission in this proceeding.

Despite the widespread recognition that there are significant problems that need to be addressed, actual outcomes in the mobile sector over the past decade should be characterized as uneven. While it is undeniable that significant advances in technology have been made, the same unambiguous conclusion cannot be drawn with respect to the social and economic standing of people within the communications sphere. While measurable progress has been made on some fronts, Canada still stands out amongst its peers as a nation in which adoption of the latest mobile services is unacceptably low. As we show in this report, Canada's low mobile adoption—particularly among society's most vulnerable members--is explained by the market's failure to offer useful services at rates that are affordable for everyone.

Indeed, this as-yet-unresolved problem has been one of the central factors driving policy activity in this area for more than twenty years. The preferred method for attacking this problem has been to seek greater market competition. Although competition in the mobile sector has nominally increased in recent years, Canada's mobile industry remains highly concentrated by well-established economic measures. This is true whether the focus is on the national level—where three providers enjoyed roughly equal control over 91% of the market by revenue in 2016[13]--or within each province, where mobile markets tend to be controlled by two dominant firms which face rivalry from weaker third and

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Recognizing the problems and approaching solutions", Available at: http://www.cmcrp.org/wp-content/uploads/2014/03/Mobile-Wireless-in-Canada-Final-Report.pdf ;
Klass, B. (2015). "Mobile wireless in Canada: Policy, problems, and progress", Masters thesis. Available at: https://mspace.lib.umanitoba.ca/bitstream/handle/1993/30704/Klass_Benjamin.pdf?sequence=1&isAllowed=y

[10] Telus (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para 43.

[11] See, e.g., Canada, Governor General (2013). "Seizing Canada's moment: prosperity and opportunity in an uncertain world", Speech from the Throne, October 16, 2013. Available at: http://publications.gc.ca/collections/collection_2013/gg/SO1-1-2013-eng.pdf

[12] Canada (2017). "Competition Bureau statement regarding Bell's acquisition of MTS", Available at: http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04200.html

[13] Most recent figures available. See: figure 5.5.6, CRTC (2017). "Communications monitoring report", Available at: https://crtc.gc.ca/eng/publications/reports/PolicyMonitoring/2017/cmr.htm

fourth providers.[14] In 2017, Manitoba saw a worrying decrease in competition, when the local communications incumbent MTS was purchased by Bell, leaving Manitoba with only three remaining mobile operators in operation, behind other provinces.

Competition can be useful as a means to achieving various ends, chief among which in the telecommunications industry are technological innovation and affordable service pricing. While the industry has had notable successes on the first measure, with respect to pricing, problems have proven intractable. Despite ongoing efforts to improve the situation, mobile services remain unaffordable for too many people, as we discuss at greater length below.

As the record of this proceeding demonstrates, Canada's national mobile carriers—who should be the champions of increasing adoption—appear to show little interest in remedying the problem. Despite the Governor in Council's recent recognition that "Canada has among the lowest adoption rates for mobile wireless telecommunications services among industrialized nations" and that "Canadians with low household income in particular face challenges related to the affordability of telecommunications services",[15] Telus continues to insist that "there is no gap in the market with respect to lower-cost data-only plans" and that "[t]o the extent the Order in Council is predicated on a finding that wireless adoption is low in Canada, that finding is also incorrect". [16] Bell similarly argues that "there is no adoption problem in Canada," and expresses the view that "[t]his success is the result of the competitive retail wireless market in Canada".[17]

These carriers may deny the facts, but they cannot escape them. In denying the real difficulties facing many people in Canada—people who deserve access to affordable communications services—the longstanding and ingrained nature of the market failure at issue is further exposed.

In the absence of industry initiative, Commission action is necessary to protect the public interest. In this report, we lay out the rationale for taking such action and provide recommendations regarding what can be done to address the problem.

Lower-cost data-only plans for mobile services

In its notice of consultation, the Commission has recognized that "the Governor in Council has expressed concerns regarding choice of innovative and affordable mobile wireless services, particularly for Canadians with low household incomes".[18] Indeed, the Commission appears to share these concerns. As it noted in Telecom Decision CRTC 2018-97, "…there is a noticeable gap in the market in terms of lower-cost data-only plans available to consumers".[19] Consistent with this observation, the Commission was clear with regard to its intention in establishing the present proceeding: "the Commission acknowledges

[14] For a more in-depth analysis of market concentration in Canadian communication markets, see:
Winseck, D. (2017). "Media and internet concentration in Canada, 1984-2016", *Canadian Media Concentration Research Project*. Available at: http://www.cmcrp.org/media-and-internet-concentration-in-canada-results/
[15] P.C. 2017-0557, 1 June 2017.
[16] Telus (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", paras. 54 & 49, respectively.
[17] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", paras. 21 & 23, respectively.
[18] Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para.3.
[19] Telecom Decision CRTC 2018-97, "Reconsideration of Telecom Decision 2017-56 regarding final terms and conditions for wholesale mobile wireless roaming service", para. 98, emphasis added.

the Governor in Council's desire to improve the choice of innovative and affordable mobile wireless services, particularly for Canadians with low household incomes, and agrees that such improvement is important".[20]

The lack of affordable mobile wireless data plans in Canada represents a significant problem, and indeed, is a clear example of market failure that demands the Commission's attention and correction, consistent with "the goal of ensuring that lower-cost data-only plans are widely available to Canadians".[21]

As requested by the Commission, on April 23, 2018, each of the three national carriers submitted a proposal outlining how they intend to address the Commission's call to ensure that more affordable data plans be made available to people across Canada. The details of the plans presented by the carriers are as follows (Figure 1).

Figure 1: Carrier proposals for "lower-cost data-only" mobile wireless plans

	Price/mo.	MB included		Notes
Bell Mobility	$30	500		Available as postpaid & prepaid; overage fee not specified.
RCCI (Rogers)	$25	400		Available as postpaid & prepaid; $7/100MB overage fee; includes ability to call 9-1-1; may receive marketing SMS from Rogers.
TCI (Telus)	$30	500		Postpaid only; $7/100MB overage fee; option for "tab" (i.e. smartphone subsidy)
TCI (Telus)	$30	600		No overage (customer must buy add-on for additional use)

Source(s): Carrier proposals, TNC CRTC 2018-98, "Lower-cost data-only plans for mobile wireless services."
Notes: "MB" stands for "megabyte", a unit of data transfer; "SMS" stands for "short message service", or, in plain language, a text message. Postpaid plans are ones in which a customer pays for service already rendered, typically at the end of the month and requiring a credit check; prepaid plans are paid for in advance. Overages are fees incurred for network usage beyond a monthly usage limit established in the service contract.

While we address the specifics of these proposals in greater detail below, we note here that, in our view, the proposals are disappointing in that they are unlikely to move the needle when it comes to addressing the 'affordability gap' identified by the Commission as the primary target of this proceeding. In what follows, we explain why this is the case, starting with an analysis of the carriers' justifications for their proposals.

In justifying their proposals, the carriers have submitted arguments that generally deny that there is an affordability issue in the mobile wireless market. Telus, for instance, argues that "…the request for proposals from the national wireless carriers is predicated on the faulty assumption that the mobile wireless market in Canada is not strong. In a high-performing market such as Canada's, consumer demand is already met with available competing offers".[22] Telus also contends that "…prices are affordable; and that Canada has amongst the highest adoption rates for wireless services in

[20] Ibid., para.86.
[21] Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para.8.
[22] Telus (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 14, emphasis added.

industrialized countries and is well-positioned amongst its peers".[23] Telus sums up its view succinctly: "There is no gap in the market with respect to lower-cost data-only plans and there is no need for the Commission to mandate the provision of such plans".[24]

Bell is similarly adamant in its opposition to the very idea that there is a problem to be addressed in this proceeding. As they see it, "Canadians seeking the most affordable wireless services are well-served and market forces will continue to increase the options available".[25] Further, as far as Bell is concerned, Canada's wireless policy represents a cut-and-dried case of 'mission accomplished':

> "Canada's wireless regulatory policy, which has focused on facilities-based competition and regulatory forbearance, has achieved effectively 100% wireless penetration in the largest urban centres despite the relatively large presence of low-income Canadians. This demonstrates that affordability is not a barrier to adoption of wireless services in Canada".[26]

Rogers, for its part, and unlike the other two national carriers, is mainly descriptive in its proposal, and largely avoids the extended and recalcitrant discussions that characterize the proposals of Bell and Telus. It does, however, have the following to say about the state of the Canadian wireless market: "Canadians have ready access to a variety of low-cost plans, including plans with data".[27] After presenting their proposal in detail, Rogers concludes: "Canada's fiercely competitive mobile wireless marketplace will ensure that service providers continue to offer low-cost plans without the need of any further regulatory intervention".[28]

As we show below, the carriers' statements ignore the existence of significant problems in the wireless market, specifically concerning the ability of low-income people in Canada to afford access to high-quality, reliable mobile wireless services. Not only do their proposals ignore this problem, but their claims are not supported by relevant evidence, and, in some cases, are not supported by any evidence at all. Furthermore, particularly in the case of Telus, the characterization of the state of affairs in the mobile market conspicuously omits crucial facts and developments that are relevant to the disposition of this consultation.

[23] Ibid., para. 17, emphasis added.
[24] Ibid., para. 54, emphasis added.
[25] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para 17.
[26] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 21, emphasis added.
[27] Rogers (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 2.
[28] Ibid., para. 25.

Availability is not the same as affordability

The carriers rely in common on several lines of argument in order to characterize the mobile wireless market as "strong" and "high performing",[29] and to suggest that no regulatory action is required since, in their view, "Canadians seeking the most affordable wireless services are well-served".[30] These arguments, and the evidence on which they are based, suffer from a shared flaw: they address the issue of *availability* while ignoring the real problem, which is that services are generally not *affordable* for many low-income individuals and families in Canada.

The carriers' evidence in support of the proposition that there is no problem in the wireless market fall roughly along the following lines: that the quality of Canadian networks is high, and coverage is ubiquitous; that adoption is already high and increasing; that prices are on the decline; and that the Canadian wireless market is less concentrated than in other comparable jurisdictions, or, in other words, that the market is sufficiently competitive to meet the requirements of users, and that this has been recognized by policymakers for decades.

In sum, the carriers' broad characterization of the mobile wireless market as one in which 'all is well' stands in stark contrast to available evidence and prior findings by the Governor General, the Competition Bureau, and the Commission itself.

Speed and coverage

Bell's proposal argues that Canada's wireless carriers have rolled out "multiple generations of the newest wireless technologies more quickly and more widely than in almost any other country […] and provide consumers with ubiquitous, reliable, and competitively-priced wireless services across our vast and sparsely populated country. For example," Bell continues, "99% of Canadians have access to long-term evolution (LTE) wireless networks, and by 2019, more than 40% will have access to network speeds greater than 900 Mbps".[31]

Similarly, throughout its proposal, Telus stresses that its services, and those of its various flanker brands, offer broad geographical coverage using the latest technology (i.e. Long Term Evolution, or LTE). Specifically, Telus notes that "As of December 31, 2017, TELUS' 4G long-term evolution (LTE) network covers 99 percent of Canada's population while the Rogers LTE network reached 96 percent of the Canadian population".[32] Additionally, citing a recent OpenSignal report,[33] Telus points out that "Canadians enjoy some of the highest average smartphone connection speeds in the world. As of

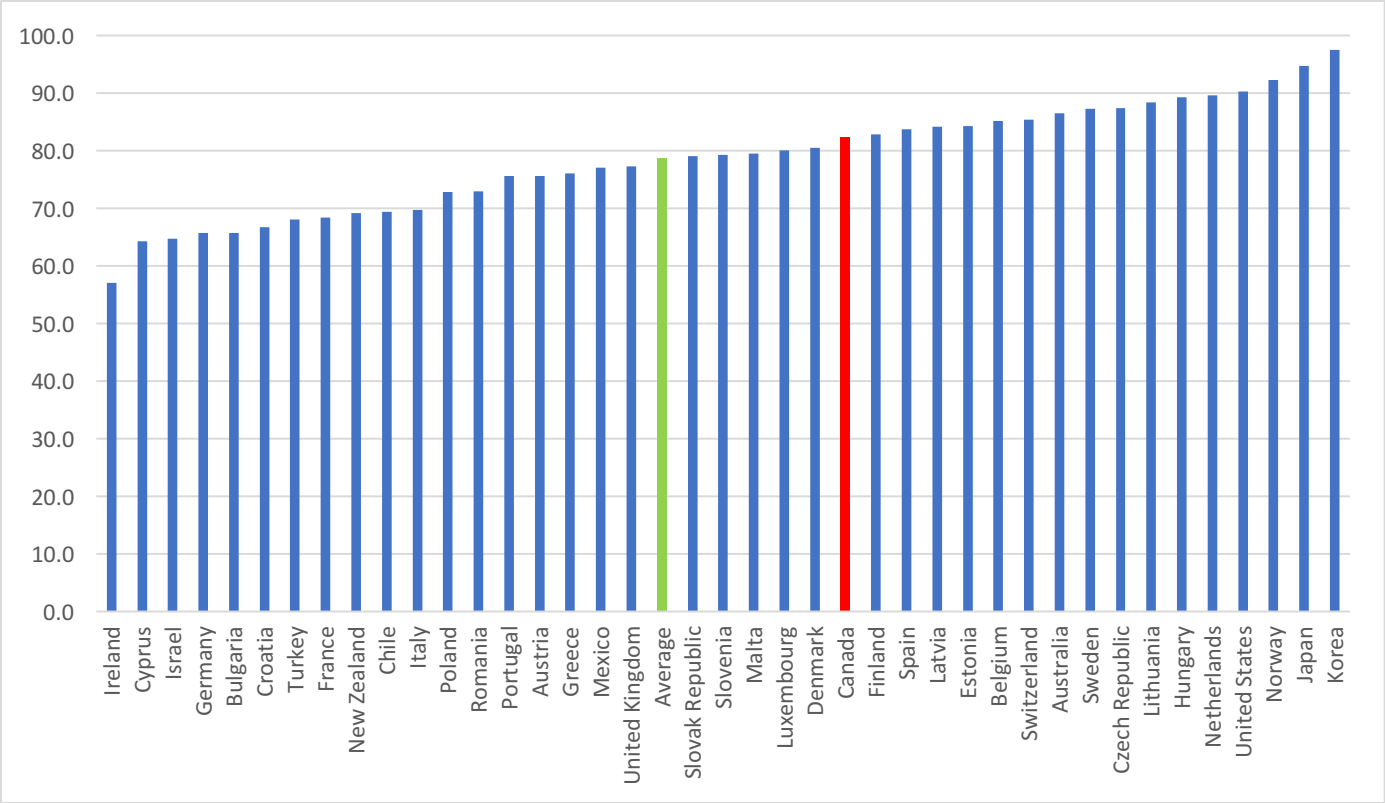
[29] Telus (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 14.
[30] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 23.
[31] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 1.
[32] Telus (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 48.
[33] Opensignal produces reports about mobile networks in countries around the world using user-generated data from custom measurement apps installed on smartphones and other mobile devices. For more information, see: https://opensignal.com/reports/

February 2018, Canada's average LTE connection speeds [sic] was 32.9 Mbps, compared with 25.39 Mbps in Japan, 16.31 Mbps in the US and 23.11 Mbps in the UK".[34]

In figures 2 and 3 below, we present data from OpenSignal's January 2018 "The State of LTE" report which highlight Canada's standing in LTE coverage and speed, respectively, in comparison to Organization for Economic Co-operation and Development (OECD) and European Union (EU) countries covered by that report.

OpenSignal's data "shows how consistently accessible 4G networks are in each country. Rather than measure geographic coverage, OpenSignal's availability metric tracks the proportion of time users have access to a particular network".[35] By this measure, mobile users in Canada can expect their devices to be connected to LTE networks 82.4% of the time. While certainly impressive, the data do not paint Canada as an outlier. Indeed, Canada ranks 17th out of the 38 countries measured, slightly above average. OpenSignal notes that "4G availability among the elite countries is still steadily rising. Consumers in five countries had access to an LTE connection more than 90% of the time – up from a mere two countries just three months ago".[36] While Canada is on pace to eventually cross that threshold, by the time it does the "elite" status will likely no longer apply.

Figure 2: 4G / LTE Availability Comparison (December 2017)



Source(s): OpenSignal, "The State of LTE (February 2018)", available at: https://opensignal.com/reports/2018/02/state-of-lte

[34] Ibid.
[35] OpenSignal (2018), "The State of LTE (February 2018)", available at: https://opensignal.com/reports/2018/02/state-of-lte
[36] Ibid.

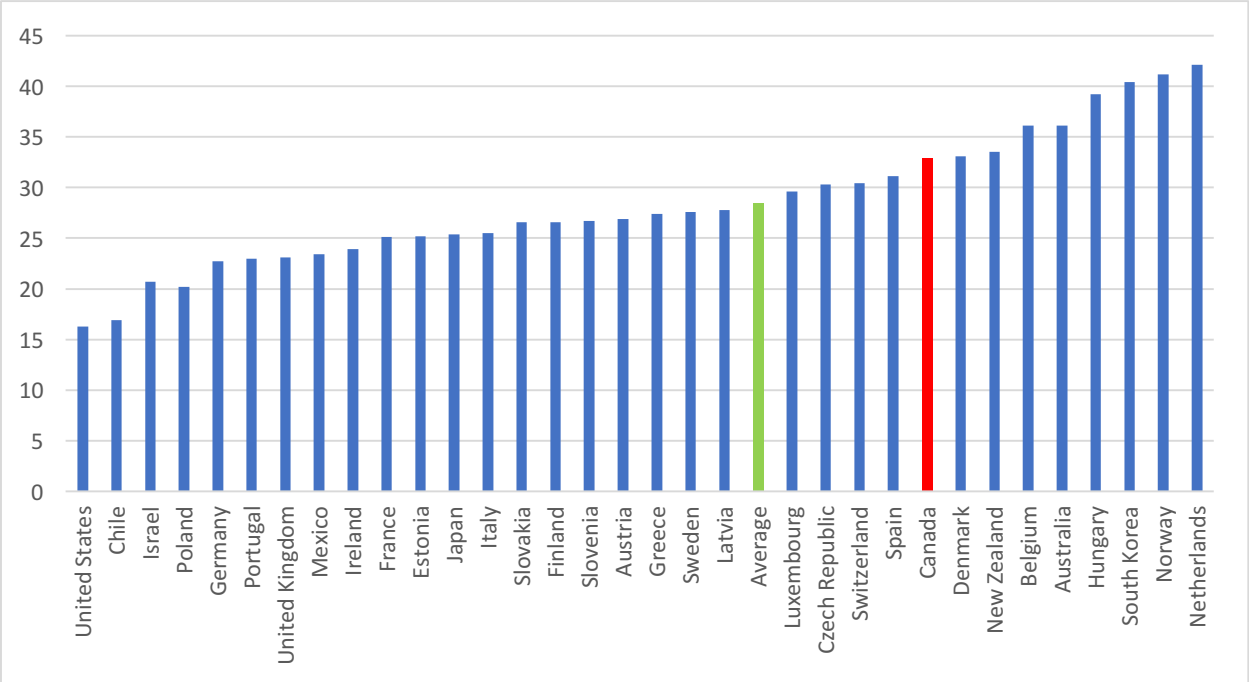
These data bring important perspective when addressing claims such as Bell's that Canadian wireless carriers "roll-out multiple generations of the newest wireless technologies more quickly and more widely than in almost any other country".[37] In terms of real-world availability of LTE connectivity, the OpenSignal data clearly show that Canada is a middle performer among comparable countries.

To put a fine point on it, even if an LTE signal is *available* across 99% of Canada's populated geography (within which, as the OpenSignal data show, an LTE signal is available 82.4% of the time), geographic coverage is a necessary but not a sufficient condition for *adoption* of mobile services. As we show below, while Canadian mobile carriers may have established near-ubiquitous *availability* of modern mobile service coverage, Canada still suffers from an acute problem with respect to mobile service *adoption*, particularly when it comes to low-income individuals and households.

Compared to its rank in LTE availability, Canada fares better with respect to speed, placing 9th of 33 countries for which data are presented (see figure 2 below). OpenSignal's data, which Telus relies upon to support its assertion that "Canadians enjoy some of the highest average smartphone connection speeds in the world" do show that Canada, with an average LTE connection speed of 32.9 Mbps, performs better than the average of 28.4 Mbps. OpenSignal, however, offers several qualifications regarding the standing of countries when it comes to speed. They observe that: "[t]he fastest LTE speeds seem to have hit a plateau at around 45 Mbps. For the last several global reports, we've failed to see any sizable increase in 4G speeds among the top performing countries, and the Holy Grail of 50 Mbps remains just as elusive".[38] If 45 Mbps represents the metric for characterizing a "top performing country", then Canada still has some way to go, although it is not unreasonable to expect this milestone to be achieved in the foreseeable future.

[37] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 1.
[38] OpenSignal (2018), "The State of LTE (February 2018)", available at: https://opensignal.com/reports/2018/02/state-of-lte

Figure 3: 4G LTE Speeds for OECD and EU Countries, Dec. 2017



Source(s): Source(s): OpenSignal, "The State of LTE (February 2018)", available at: https://opensignal.com/reports/2018/02/state-of-lte

We also note that, while having access to high-speed mobile networks may be important as a general policy goal, when focused specifically on the type of low-usage plans proposed by the national carriers, higher speeds may actually become an impediment to these plans' utility for low-income people who might adopt them as the only affordable option. Consider, for instance, that a subscriber who makes use of the service at the average connection speed of 32.4 Mbps would reach a monthly data limit of 400 MB (Rogers' proposed limit) in just over one and a half minutes, a 500 MB limit (proposed by Bell and Telus) in approximately 2 minutes, or a 600 MB limit (proposed by Telus) in less than 3 minutes. In any of these scenarios, the extra speed which the carriers portray as an unalloyed benefit may result in customers of the proposed plans unexpectedly reaching their monthly data allotments in a matter of moments, after which they would face the choice between paying unexpected fees for additional data[39] or ceasing their use of the mobile service. It should be recognized, at minimum, that there is a tradeoff between 'speed' and 'data allowance' that must be accounted for when attempting to maximize the utility of mobile plans, a concern that is particularly salient with regard to plans designed for lower levels of usage.

A scenario such as the one described above is not far fetched; as a recent Ericsson report notes, "[o]f all the traffic generated by the users of limited plans, around 30 percent is consumed above data bucket limits. This allows operators to continuously upsell data through top-ups. In addition, this demand for more data plays a key role in the shift to larger plans".[40] If the Commission's objective in this proceeding

[39] At the time of writing, Koodo and Fido each charge $7 per additional 100 MB beyond a user's monthly data allotment. Virgin Mobile's website does not make its data overage rates available for viewing by the general public; users must log into an existing account to access this information. The carriers (aside from Telus, which is silent on the issue) have indicated that the overage fees applicable to its proposed plans will be equivalent to those overage fees which already apply to existing in-market plans. See: Rogers Proposal, para. 9; Bell Proposal, para. 4.
[40] Ericsson (2017), "Ericsson Mobility Report, November 2017: Shifting mobile data consumption and data plans", Available at: https://www.ericsson.com/en/mobility-report/reports/november-2017/shifting-mobile-data-consumption-and-data-plans

is to ensure that people in Canada who earn low incomes have affordable access to mobile services that meet their needs and their budgets, then our analysis suggests the focus should be less on the speed of networks and more on ensuring that monthly data limits associated with the plans are sufficient to ensure that users will not be hit with steep unexpected fees, and that the plans, once approved, are not used by the carriers merely as a vehicle to upsell their customers. In other words, monthly data allowance, not speed, is the more important factor when considering how to best maximize the utility of mobile services for users.

Both of the metrics above, network coverage and speed, while interesting, are of questionable relevance to the central policy question animating this proceeding: namely whether mobile wireless services are sufficiently affordable to qualify as satisfying the Canadian telecommunications policy objective to render reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada".[41] The reason for this is that the carriers' efforts to characterize their networks as fast and ubiquitous fundamentally misconstrue *availability* for *affordability*. Living within the coverage area of a fast wireless network provides little comfort or utility for a family that cannot afford access in the first place.

These conclusions are supported by a recent report on affordability commissioned by the CRTC, which found that "[i]n addition to documenting the persistence of the digital divide, the literature has increasingly recognized that geographic network coverage is not in itself enough to ensure widespread access and use".[42]

It is understandable that the carriers are proud of the quality of their networks; however, so long as access remains unaffordable for so many, then there is a lot more work to be done. In the following section, we survey the available data on adoption of mobile services, finding that Canada exhibits a significant "gap" in mobile adoption, particularly amongst low-income households. This gap, in our view, is attributable to a lack of affordability for those households. This is the gap which the Commission should seek to address in this proceeding.

Adoption and affordability

In its proposal, Telus characterizes the situation in Canada as one in which "wireless adoption is high and increasing".[43] Telus presents figures on the absolute number of mobile subscriptions in Canada (30.7 million in 2016, or 84.3% of the population), refers to growth rates, notes that 75% of mobile subscribers in Canada use smartphones, and argues that "[i]n Canada, a higher proportion of lower-income consumers are using smartphones relative to high income consumers, than in other countries".[44] The figures that Telus cites are largely irrelevant, or at minimum less appropriate and descriptive of the actual situation in Canada than figures on comparative international adoption and adoption by income and geography, which we present below. The reason for this is simple: Telus presents overall adoption

[41] Telecommunications Act (S.C. 1993, c. 38). s. 7(b).
[42] Rajabiun, R., Ellis, D., & Middleton, C. (2016). "Literature review: Affordability of communications services", page 25. Available at: https://www.ryerson.ca/~cmiddlet/ourresearch/lit-review-for-crtc-2016-affordability-rajabiun-ellis-middleton.pdf
[43] Telus (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services".
[44] Telus (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 49.

statistics without providing appropriate context; next to comparable nations, as we demonstrate below, Canada's overall mobile adoption levels are relatively low. Telus' reliance on overall adoption also ignores available evidence that accounts for differing adoption levels according to demographic considerations like income. As the data show (see below), there is in fact a significant 'gap' in adoption amongst lower-income people in Canada. Second, Telus presents figures showing the proportion of *subscribers* using smartphones, in an effort to paint Canada as a nation whose residents are largely adopters of advanced technologies. But this conclusion suffers from a rudimentary error resulting from selection bias: the relevant metric against which smartphone adoption should be measured is total *residents*, not total *subscribers*. Choosing subscribers as the base, which Telus does, removes from consideration people who do not subscribe to any mobile service, and thus their conclusion constructs an inflated picture of smartphone adoption. As we show below, when smartphone adoption is measured on the basis of total population, Canada fares poorly compared to other developed nations.

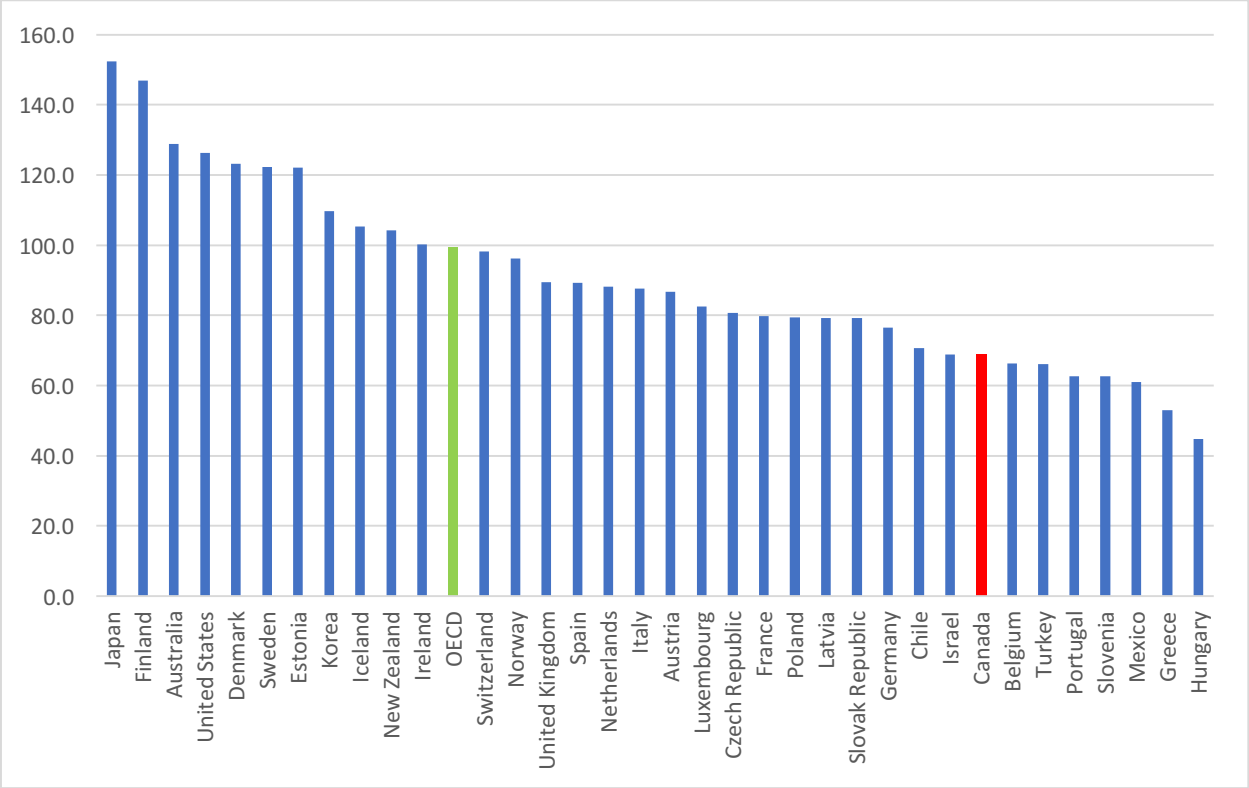
Similar to Telus, Bell argues that "Canada's wireless regulatory policy […] has achieved effectively 100% wireless penetration in the largest urban centres despite the relatively large presence of low-income Canadians."[45] Bell also argues that people in Canada are "among the world leaders in adopting new wireless technologies as a result of the high quality and affordable services made available in the Canadian wireless market. For example, […] in 2016 Canada was second in the G20 with respect to smartphones as a percentage of device connections [at 59.2%]. Canada exceeds the European countries in this measure," Bell continues, "further demonstrating that there is no adoption problem in Canada".[46]

The carriers' presentation of figures and arguments referred to above are, simply put, an exercise in feathering their own nest, by sidestepping the very real problem with mobile adoption in the Canadian wireless market. Bell's assertion that mobile adoption is universal in urban areas is not supported by any evidence, and, unless the only people in Canada without a mobile phone reside in rural areas, is plainly not true. Additionally, both Bell and Telus' figures with respect to smartphones as a percentage of total connections ignores that the absolute number of mobile connections in Canada are at present and have been historically low in comparison to other countries, specifically member-states of the Organization for Economic Cooperation and Development (OECD).

In figure 4 below, we present comparative figures on mobile wireless broadband adoption across OECD member countries for 2017. These data contain penetration figures (i.e. subscriptions per 100 inhabitants) for both "standard mobile broadband" plans (i.e. smartphone plans that include both voice and data) as well as "dedicated mobile broadband" plans (i.e. data-only subscriptions such as the ones under consideration in this proceeding, typically used with tablets, or portable internet "hot spots"). The evidence is clear: Canada does not compare well to other nations when it comes to adoption of modern mobile wireless services.

[45] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 21.
[46] Ibid.

Figure 4: Overall Mobile Wireless Broadband Penetration (subscriptions/100 people) (June 2017)

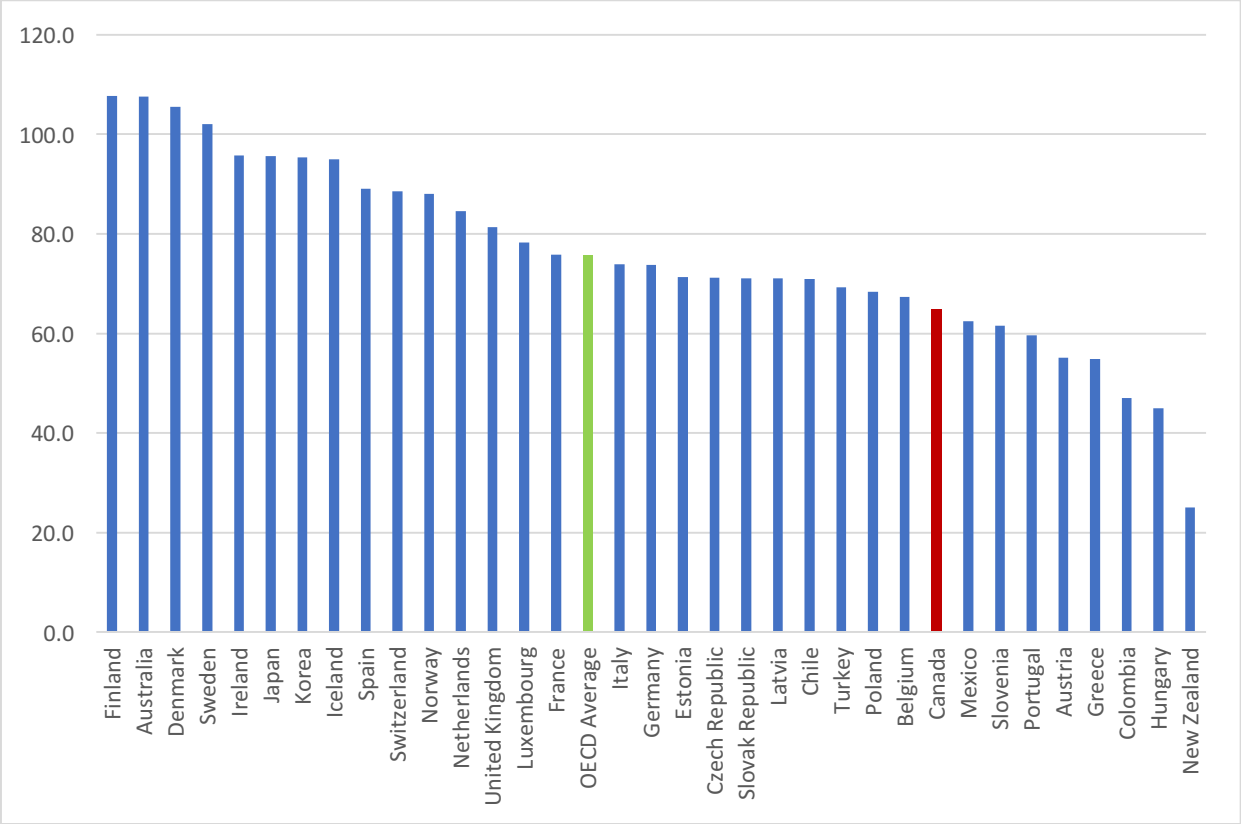


Source: OECD Broadband Portal. Available at: http://www.oecd.org/sti/broadband/broadband-statistics/

The OECD data presented above show the combined penetration rate of mobile broadband plans per country. This includes both "standard mobile broadband" plans as well as "dedicated mobile broadband" plans. These data show that Canada had an overall mobile wireless broadband penetration rate of 70.7 (i.e. 70.7 mobile broadband subscriptions per 100 inhabitants) as of June 2017, significantly lower than the OECD average of 101.8.[47] This ranks Canada at 28th out of 36 developed nations, substantially lower than Australia--a country that is, like Canada, large and sparsely populated--which sat at rank 3 with a penetration rate of 132.5, or the United States, in 5th place with 128.6 connections per 100 people (Canada was tied with Israel in 2017). As these data clearly show, Canada is lagging behind its peers when it comes to ensuring universal adoption of mobile wireless services.

[47] The number sometimes exceeds 100, because people often have more than one device. This could be seen in the case of people who maintain separate subscriptions for personal versus work purposes, or people who subscribe to separate mobile plans for their smartphone and tablet devices. To the authors' knowledge, there are no authoritative studies that correct for this phenomenon for the purpose of making reliable international comparisons.

Figure 5: Standard Mobile Broadband Penetration (subscriptions/100 people) (June 2017)

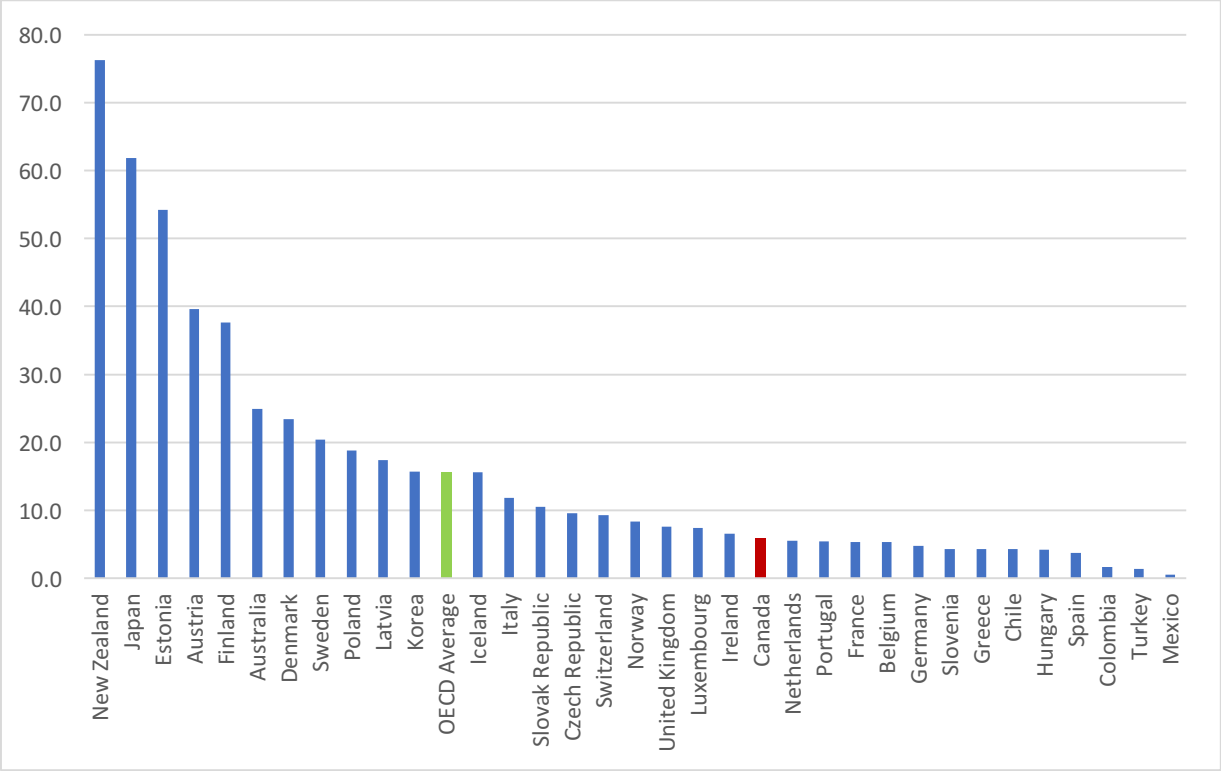


Source: OECD Broadband Portal. Available at: http://www.oecd.org/sti/broadband/broadband-statistics/

With respect to "standard mobile broadband" plans–that is, mobile wireless plans that include both voice and data components, or the kind used to enable smartphone connectivity—Canada fared poorly as well, sitting at 23rd out of 34 countries with a penetration rate of 64.8%.[48] The data presented above (figure 5) directly contradict claims by Bell and Telus that Canada is a leader with respect to smartphone adoption. So, while Telus may claim that Canada is a leader based on its observation that "75 percent of Canadian mobile subscribers used smartphones [in 2016]", the fact is that the absolute number of mobile users who subscribe to voice and data plans in Canada—the more relevant figure—shows that Canada is well below average.

[48] The United States and Israel are excluded from this comparison, since the OECD does not have figures specific to "standard mobile broadband" plans for these countries. Both countries are, however, included in the OECD's overall mobile broadband penetration figures presented above in figure X.

Figure 6: Dedicated Mobile Broadband Penetration (subscriptions/100 people) (June 2017)



Source: OECD Broadband Portal.

Figure 6 shows data from the OECD representing dedicated mobile broadband (i.e. mobile "data-only" plans) penetration in OECD countries for which this figure is available.[49] Here too, Canada ranked poorly in 2017: of the 34 countries for which data were available, Canada ranked 21st with a penetration rate of 5.9%.

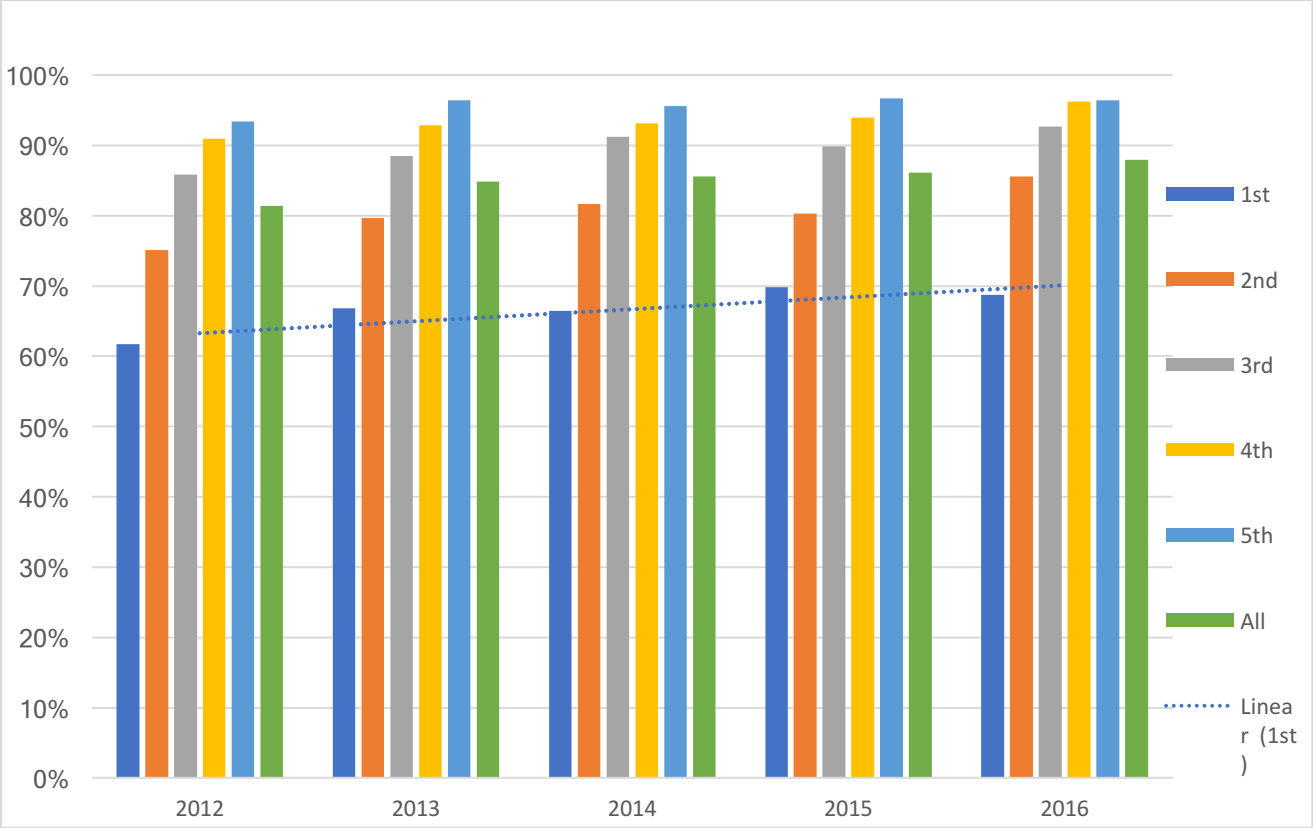
Contrary to the rosy portrait painted by the national carriers, OECD data show in no uncertain terms that Canada's levels of mobile wireless broadband adoption lag behind in comparison to our peer nations. This is true whether we look at overall mobile broadband penetration, standard mobile broadband penetration, or dedicated mobile penetration. Furthermore, this is not a new phenomenon: Canada's ranking in terms of overall mobile broadband penetration amongst OECD peers has actually fallen from 21st in 2010 to 28th in 2017. These nation-level figures directly contradict claims that "there is no adoption problem in Canada".[50] Telus' contention that Canada "has amongst the highest adoption rates for wireless services in industrialized countries and is well-positioned amongst its peers"[51], in other words, does not accord with the evidence.

[49] The United States and Israel are excluded from this comparison, since the OECD does not have figures specific to "dedicated mobile broadband" plans for these countries.
[50] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 21.
[51] Telus (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 17.

Adoption among lower-income households is low

Our analysis of the more fine-grained demographic data on adoption trends within Canada reveals an equally if not more disconcerting trend. In what follows, we present Statistics Canada data on cellular telephone adoption. These data show cellular telephone adoption at the national and provincial levels, on an overall per-household basis as well as broken out by income quintiles. The conclusion that these data lead to is clear: there is a very real gap in mobile adoption in Canada, a gap that is particularly stark amongst low-income households.

Figure 7: Household Access to Mobile Phone Service by Income Quintile, Canada, 2012-2016



Sources: Statistics Canada (2018).'Dwelling characteristics, by household income quintile, Canada, 2016, Survey of Household Spending in 2016; Statistics Canada (2017). Dwelling characteristics, by household income quintile, Canada, 2015, Survey of Household Spending in 2015; Statistics Canada (2016). Dwelling characteristics, by household income quintile, Canada, 2014, Survey of Household Spending in 2014; Statistics Canada (2015). Dwelling characteristics, by household income quintile, Canada, 2013, Survey of Household Spending in 2013; Statistics Canada (2014). 'Dwelling characteristics, by household income quintile, Canada, 2012. In Survey of Household Spending.

Notes: Upper bounds for 2016 income quintiles are as follows: 1st—$32,090; 2nd—$55,470; 3rd—85,336; 4th—130,045. Bounds decrease moderately going back each year.

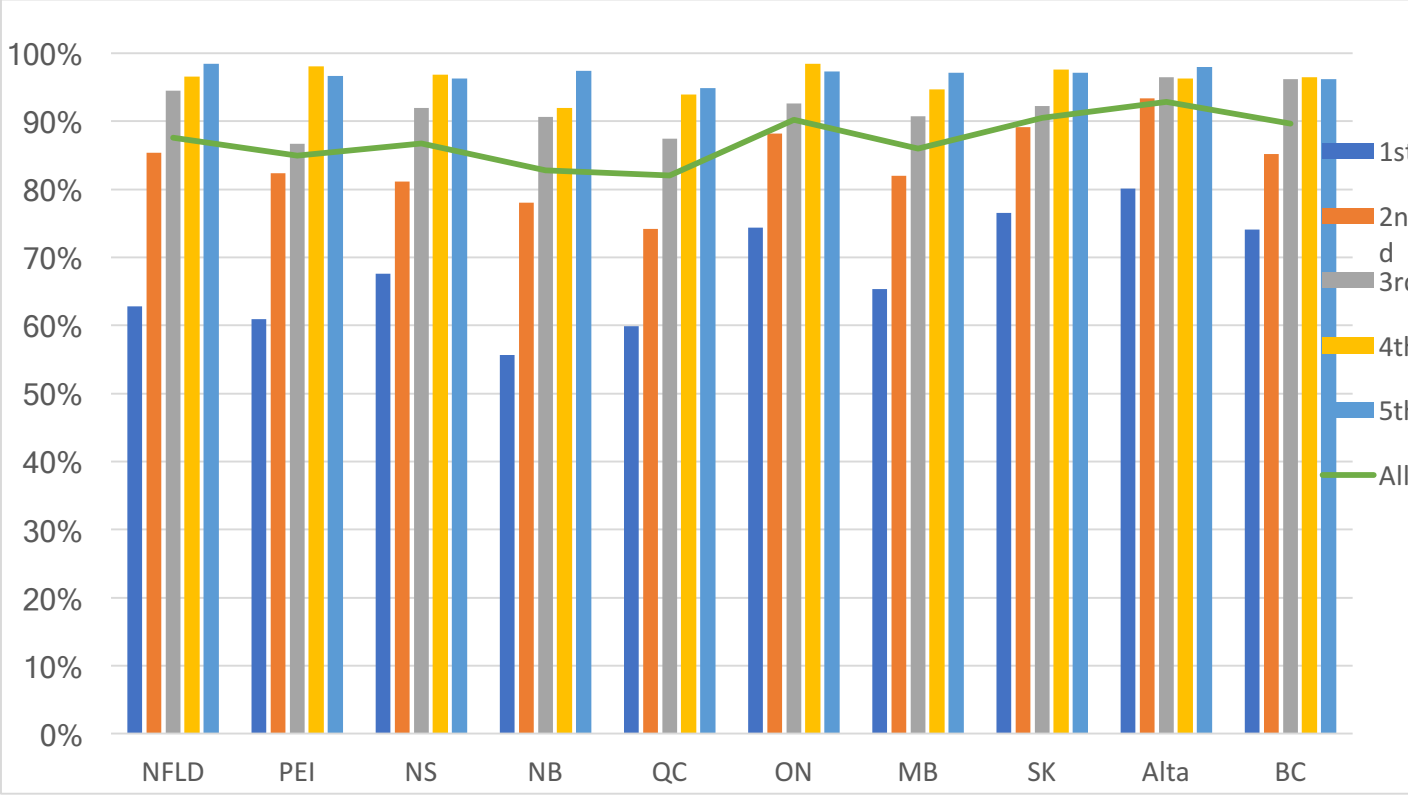
The most obvious trend that these data reveal is this: low income people in Canada subscribe to mobile service at a drastically lower rate than their higher-earning counterparts. With a mobile subscription rate of 68.7%, Canadian households in the lowest income quintile (i.e. household income less than $32,090 per year, of which there were roughly 2,853,000 in 2016) were significantly less likely to subscribe to at least one mobile device than both the across-the-board average (87.9%) and than their

higher-earning counterparts. At 85.6%, households in the second quintile (i.e. earning between $32,091 and $55,470, of which there were roughly 2,854,000 in 2016) subscribed at a level just below average, and were also notably less likely to have at least one mobile subscription than higher-earning households. For households in the top three quintiles, by contrast, mobile adoption is nearly universal, ranging from 92.7-96.4%.

Adoption of mobile phones among the lowest income bracket did grow by 7% from 2012-2016, outpacing average growth across income quintiles by 0.5%. However, from 2015-2016, while significant increases in growth among the middle three brackets (5.8%, 2.5%, and 2.3%, respectively) drove average adoption across quintiles to increase by 1.8%, adoption in the lowest income bracket actually fell by 1.2% during this time (the most recent year for which Statistics Canada data are available). In other words, increases in adoption among low-income households appears to have stalled, leaving absolute adoption levels in low-income households much lower than those found amongst higher-earners. Bell and Telus may deny that this gap exists, but the facts say otherwise.

The situation is similar at the provincial level. The following chart (figure 8) shows adoption by income quintile at the provincial level for 2016, the most recent year for which such data are available.

Figure 8: Household Access to Mobile Phone Service by Income Quintile and by Province, 2016



Sources: Statistics Canada (2018).'Dwelling characteristics, by household income quintile in 2016 by Province, Survey of Household Spending in 2016.
Notes: Upper bounds for 2016 income quintiles are as follows: 1st—$32,090; 2nd—$55,470; 3rd—85,336; 4th—130,045.

As with the national data, figure 8 shows that adoption of mobile service amongst the lowest income households is drastically lower than it is for higher-earning households, with no province acting as an exception. Furthermore, in no province does the low-income adoption level reach the national average for overall adoption rates (87.9%); in some provinces, such as New Brunswick (55.7%), Québec (59.9%), and PEI (60.9%), the problem appears to be particularly acute.

The explanation for these trends is simple: mobile phones are unaffordable for many low-income people in Canada, who are disproportionately less likely to subscribe to mobile service than those who have higher income. An affordability report commissioned by the CRTC supports this conclusion, finding that "…low incomes and high costs represent two main barriers to affordability".[52] Furthermore, the authors note that:

> The research shows that broadband penetration rates continue to be substantially lower among low income Canadians (e.g. 60% for the lowest income quintile versus over 95% for the highest income quintile). It also confirms the tendency of subscribers on low incomes to engage in fewer activities online relative to those with high incomes. While lack of interest or low skill levels partially explain lower adoption and use among low-income individuals, cost remains a dominant motive for why low-income Canadians do not use the Internet. Nevertheless, the growing essentiality of broadband and increases in the inelasticity of demand to price, along with country-specific factors, enable incumbent operators in Canada to charge prices that are higher than offerings by their counterparts in most other advanced economies. International comparisons also suggest that the range of low-cost options available in the Canadian market tend to be relatively limited, meaning that low-income households are likely to have fewer affordable options in service plans than their counterparts in other advanced economies.[53]

We have already presented data confirming that low income households in Canada do indeed face substantial barriers to mobile adoption, as reflected by the difference in adoption levels between households based on income. In the following section, we present pricing data relevant to mobile affordability, drawing on publicly available sources from Nordicity Group (commissioned by Innovation, Science and Economic Development/ISED), the International Telecommunications Union (ITU), the US Federal Communications Commission (FCC), the OECD, and Finnish consultancy Rewheel.[54]

These sources, which present data using a variety of methods and metrics (including mobile price as a percent of gross national income per capita, purchasing power parity (PPP), price declines over time, price per GB, and international comparison of a common mobile service basket) all lead to the same conclusion: mobile wireless services in Canada are less affordable than they are elsewhere in comparable countries, particularly for low-income households and individuals.

[52] Rajabiun, R., Ellis, D., & Middleton, C. (2016). "Literature review: Affordability of Communications services", Report commissioned by the Canadian Radio-television and Telecommunications Commission, p. 11. Available at: https://www.ryerson.ca/~cmiddlet/ourresearch/lit-review-for-crtc-2016-affordability-rajabiun-ellis-middleton.pdf

[53] Rajabiun, R., Ellis, D., & Middleton, C. (2016). "Literature review: Affordability of Communications services", Report commissioned by the Canadian Radio-television and Telecommunications Commission, p. 25, emphasis added. Available at: https://www.ryerson.ca/~cmiddlet/ourresearch/lit-review-for-crtc-2016-affordability-rajabiun-ellis-middleton.pdf

[54] For more information on these organizations, please consult the glossary of terms included in this report.

Mobile pricing, in decline?

To the extent that the carriers' proposals discuss the broad issue of high mobile prices in Canada, the focus is on the assertion that prices are in decline with no consideration for how Canadian trends compare to those in other jurisdictions. Telus' sole claim on this point is that "[d]ata provided in the CRTC [Communications Monitoring Report] shows a decline of between 9 and 16 percent in average mobile service prices for pre-defined baskets of wireless services".[55] Bell briefly refers to several reports, including a 2017 telecommunications pricing report by Nordicity commissioned by Innovation, Science and Economic Development (ISED); a report by Wall Communications Inc that it commissioned as part of its participation in an earlier CRTC proceeding related to mobile services; and an Economist study. The conclusion Bell draws, similar to that of Telus, is that "mobile wireless services are available to Canadians, and to low income Canadians in particular, at affordable prices".[56] As was the case with the carriers' approach to the issue of adoption, here too their presentation of facts is selective, and their predominant focus on rates of price decline in Canada, absent appropriate context, are unhelpful with regard to developing an actual understanding of the state of affairs that prevails in Canada and elsewhere.

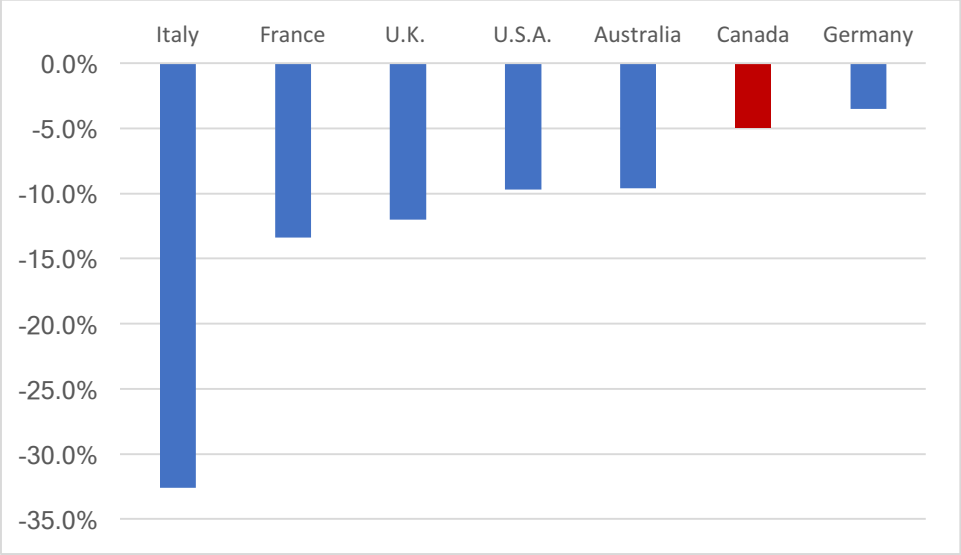
In terms of price declines, while the Nordicity report prepared for ISED does show price declines over time for most of the baskets studied, the carriers neglect to place these figures in their proper context: the study referenced is an international comparison. Unsurprisingly, placing Canada next to its international peers with respect to changes in mobile prices shows that Canada is not a leader, but rather, that the magnitude of price declines in the Canadian mobile market were significantly smaller than in the majority of the comparators (G7 nations + Australia). The following figures show these comparative declines over time for non-shared mobile telephony baskets which include data,[57] as well as for mobile broadband plans (i.e. mobile broadband plans that do not include voice minutes). Changes are expressed in terms of compound annual growth rates (CAGR) for the respective survey periods.

[55] Telus (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 46.

[56] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", paras. 14-16.

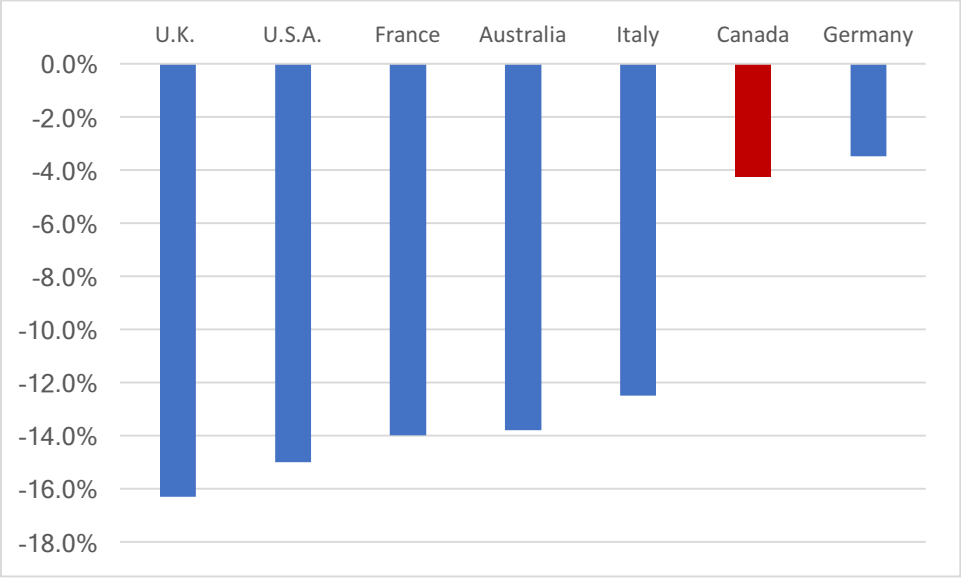
[57] Non-shared plans are mobile plans that are offered to individual subscribers. Shared plans, by contrast, make available a pool data allowances to multiple devices on the same account. The plans proposed by the carriers in this proceeding are non-shared plans, and therefore shared plans are not considered directly comparable for the purpose of this report. However, the evidence presented by Nordicity for shared plans places Canada in a similarly poor position with respect to comparator nations when considering shared plan price declines and overall prices. For service level 6, which represents shared plans featuring unlimited minutes, SMS, 10GB of data, and 3 lines, Canada ranked 4th of 5 countries (2nd most expensive). See: Nordicity, 2017 Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions.

Figure 9: International Comparison
Mobile Telephony Price Declines, CAGR 2008-2017
Service Level 3 (1200 minutes, 300 SMS, & 1GB data)



Source: Nordicity, 2017 Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions.
Note: CAGR stands for "compound annual growth rate". See glossary for further explanation.

Figure 10: International Comparison
Mobile Telephony Price Declines, CAGR 2014-2017
Service Level 4 (Unlimited minutes, SMS, & 2GB data)



Source: Nordicity, 2017 Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions.
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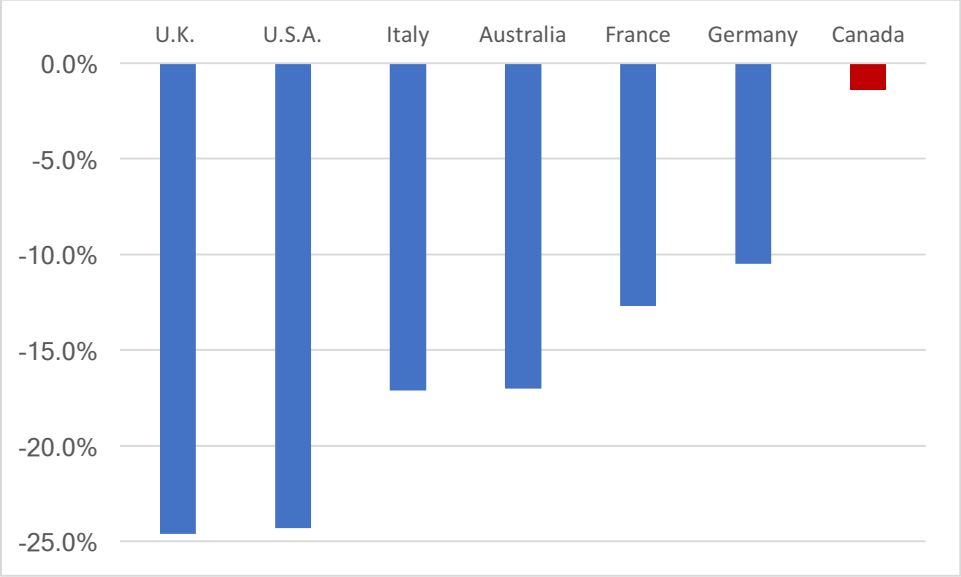
Figure 11: International Comparison
Mobile Telephony Price Declines, CAGR 2015-2017
Service Level 5 (Unlimited minutes, SMS, & 5GB data)

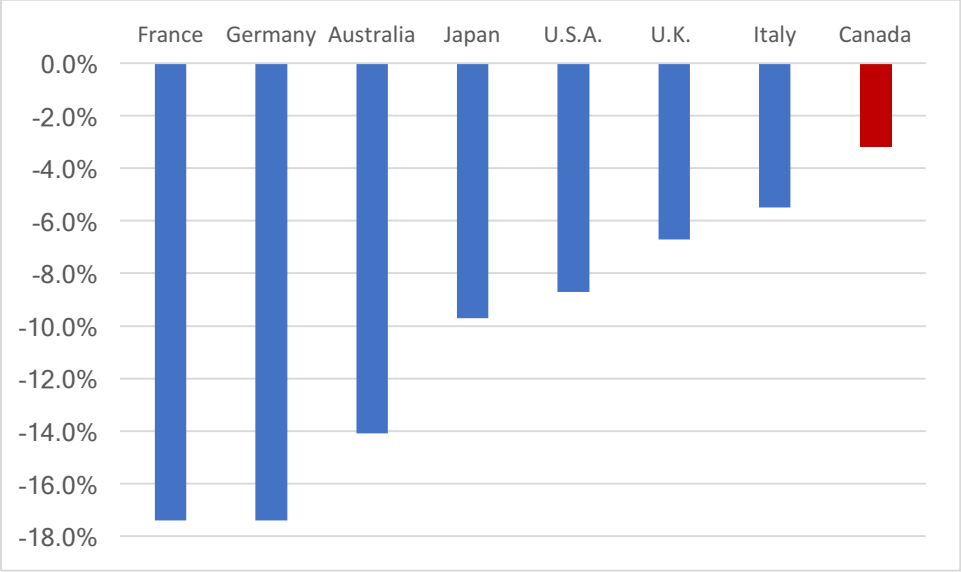


Source: Nordicity, 2017 Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions.
Notes: No data on growth/decline for Japan.

For all three of the service baskets shown in figures 9-11, Canada fared poorly in comparison to its international peers by the measure of mobile wireless telephony price declines. Between 2008 and 2017, for the first two baskets (plans with 1GB and 2GB of data), Canadian price declines of CAGR -5% and -4.3%, respectively, were significantly outstripped by declines ranging from CAGR -9.6% to -32.6% in other countries. Price declines in Canada were only greater than those in one country: Germany. For plans that include 5GB of data, Canadian prices declined by only CAGR -1.4% from 2015-2017, while in all other countries prices declined by between CAGR -10.5 to -24.6%.[58] In terms of price declines for mobile wireless broadband plans which do not include a voice component, the Nordicity report shows that Canada's performance was similarly poor, as the figures 12-14 demonstrate.

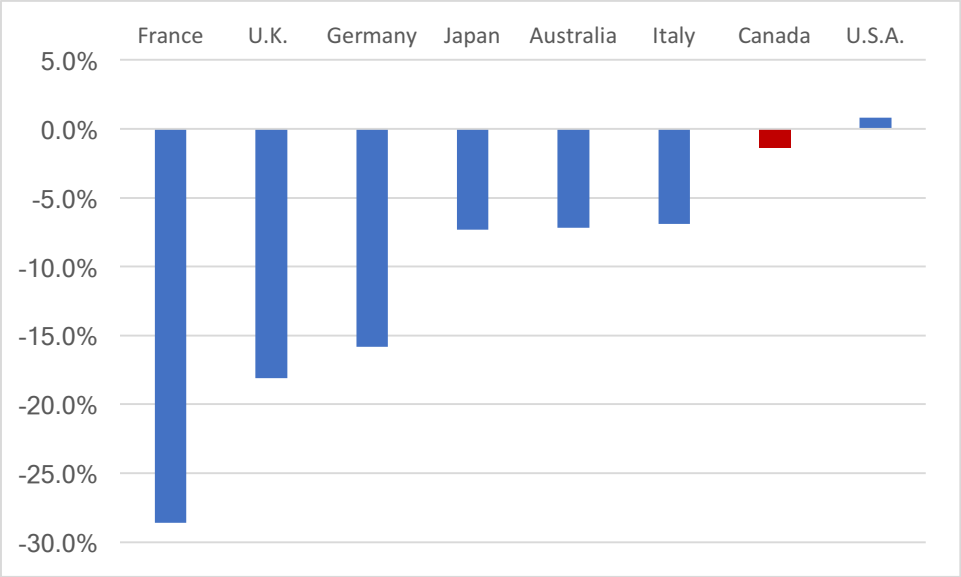
[58] Nordicity's mobile telephony service levels 1 and 2 represent plans that do not include a data component, and thus are excluded from this report, as they are not directly comparable to the data-only plans that are under consideration. For these plans, Canada is a middle- to poor-performer. For level 1 plans, which include only 150 minutes, Canada ranks 4th of 5 countries measured (2nd most expensive). For level 2 plans, which include 450 minutes and 300 SMS, Canada ranks 4th of 6, or 3rd most expensive. See: Nordicity, 2017 Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions.

Figure 12: International Comparison
Mobile Broadband Price Declines, CAGR 2010-2017
Service Level 1 (2GB to less than 5GB)



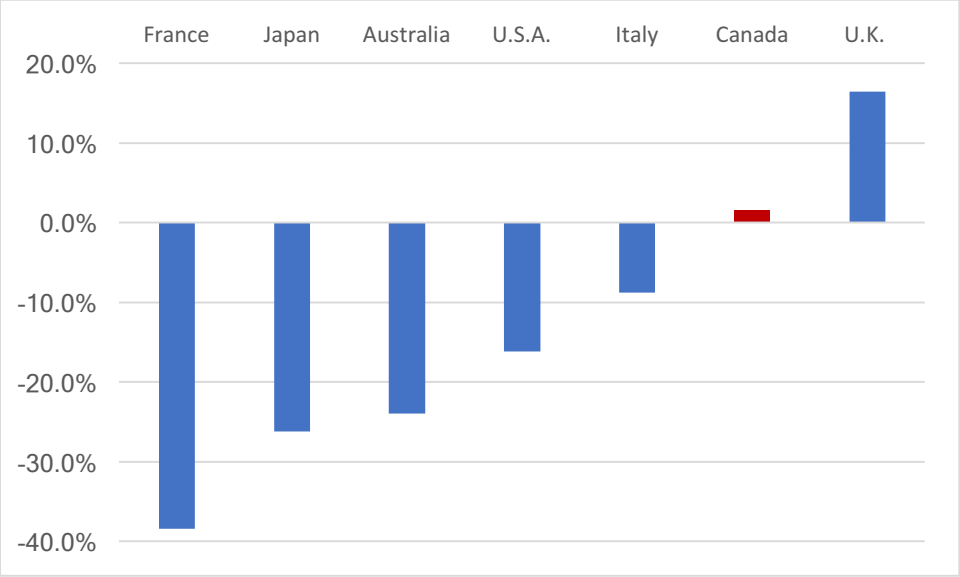
Source: Nordicity, 2017 Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions.

Figure 13: International Comparison
Mobile Broadband Price Declines, CAGR 2012-2017
Service Level 2 (5GB to less than 10GB)



Source: Nordicity, 2017 Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions.

Figure 14: International Comparison
Mobile Broadband Price Declines, CAGR 2016-2017
Service Level 3 (10GB and more)



Source: Nordicity, 2017 Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions.

Similar to the case with mobile telephony plans, the Nordicity data presented above show that mobile broadband plans in Canada have generally been subject to modest price decreases, with the exception of plans that include more than 10GB, which increased in price by 1.6% from 2016-2017. In terms of comparisons, these data again show that price declines in Canada have been significantly less than in other G7 countries and Australia.

Between 2010 and 2017 for the lowest usage tier, Canadian price declines were the slimmest of all countries studied at CAGR -3.2%, while declines in other countries ranged from CAGR -5.5% in Italy to CAGR -17.4% in France. For the middle tier, only the United States, where prices increased by CAGR 0.8%, fared worse than Canada. For the highest tier (plans with 10GB or more), Canadian prices increased by 1.6%, and only the UK saw worse performance. At the same time all other countries experienced price declines between CAGR -8.8% and -38.4%. So, while the carriers may be technically correct in noting that Canadian mobile wireless prices have generally declined over time, their observations lack relevant context. When placed next to our international peers, Canada's performance on this measure is unquestionably poor.

Canada does not fare well in terms of overall price levels

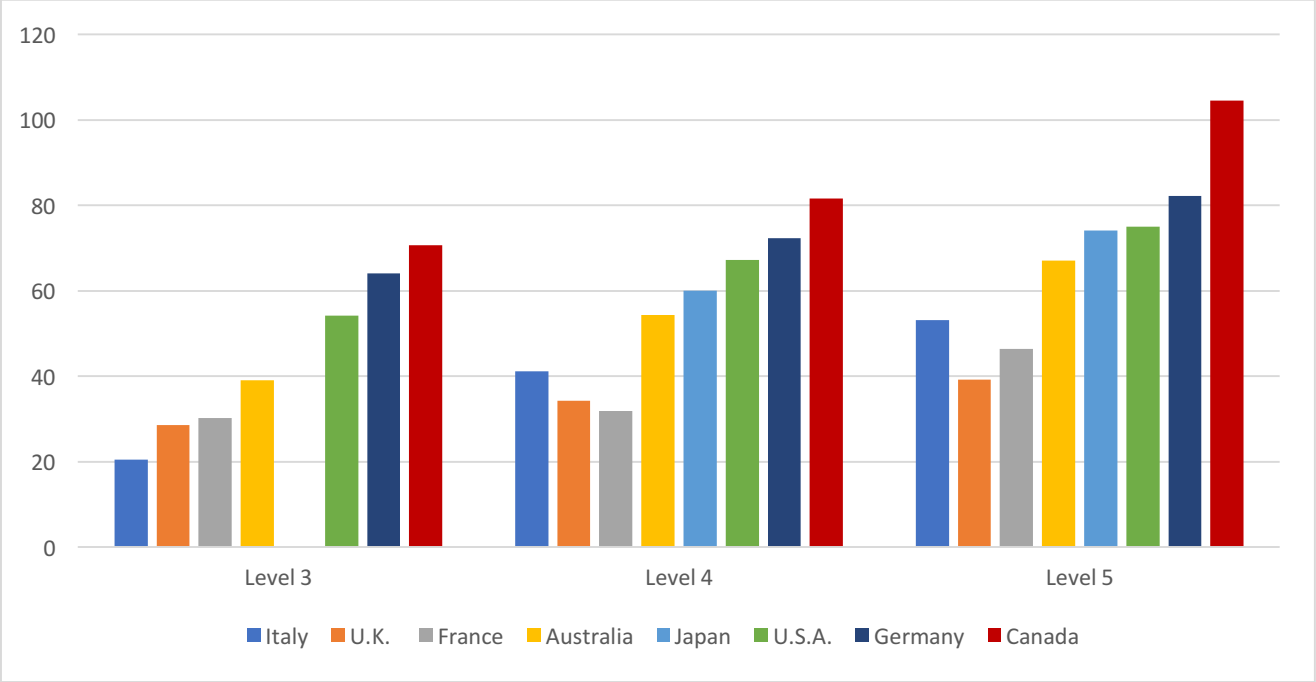
A focus on change in price presents only a partial image of the situation. As noted by the affordability report commissioned by the CRTC, understanding the relationship between adoption, price, and affordability requires attention to fine grained and, to the extent possible, comprehensive detail. According to Rajabiun, Ellis, and Middleton:

> Understanding the multifaceted nature of affordability in a fine grained manner requires detailed data on the price and quality of services, which can then be correlated with broader indicators of socioeconomic disparities, such as income, place of residence, health status, ethnic background, etc. Indicators of price levels, range of price/quality combinations, penetration rates of advanced technologies and other high-level market outcome measures can offer informative signals about affordability as an economic constraint on access, use, and the development of the broader ICT sector.[59]

As discussed above, a focus on *change* in price does not paint Canada in a favourable light when compared to our international peers. But while the carriers have focused on a selective presentation of price declines in Canada to characterize the situation as improving, the Nordicity report's study of *absolute* price levels further confirms that mobile wireless services in Canada are significantly more expensive than those found in comparable countries. Following the affordability report's observations, we now present international comparative data on price levels in order to determine what the signals say about affordability. As shown in figure 15 below, for non-shared mobile plans that include both voice and data, Canadian prices are higher than those found in any of the G7 countries and Australia, in some cases more than doubling the lowest prices presented in the Nordicity study. These data confirm that mobile wireless services in Canada are substantially less affordable than those found in comparable countries.

[59] Rajabiun, R., Ellis, D., & Middleton, C. (2016). "Literature review: Affordability of Communications services", Report commissioned by the Canadian Radio-television and Telecommunications Commission, p. 2, emphasis added. Available at: https://www.ryerson.ca/~cmiddlet/ourresearch/lit-review-for-crtc-2016-affordability-rajabiun-ellis-middleton.pdf

Figure 15: International Comparison
Prices for Non-Shared Mobile Wireless Telephony Service Baskets that include data, Levels 3-5
2017, PPP-Adjusted CA$

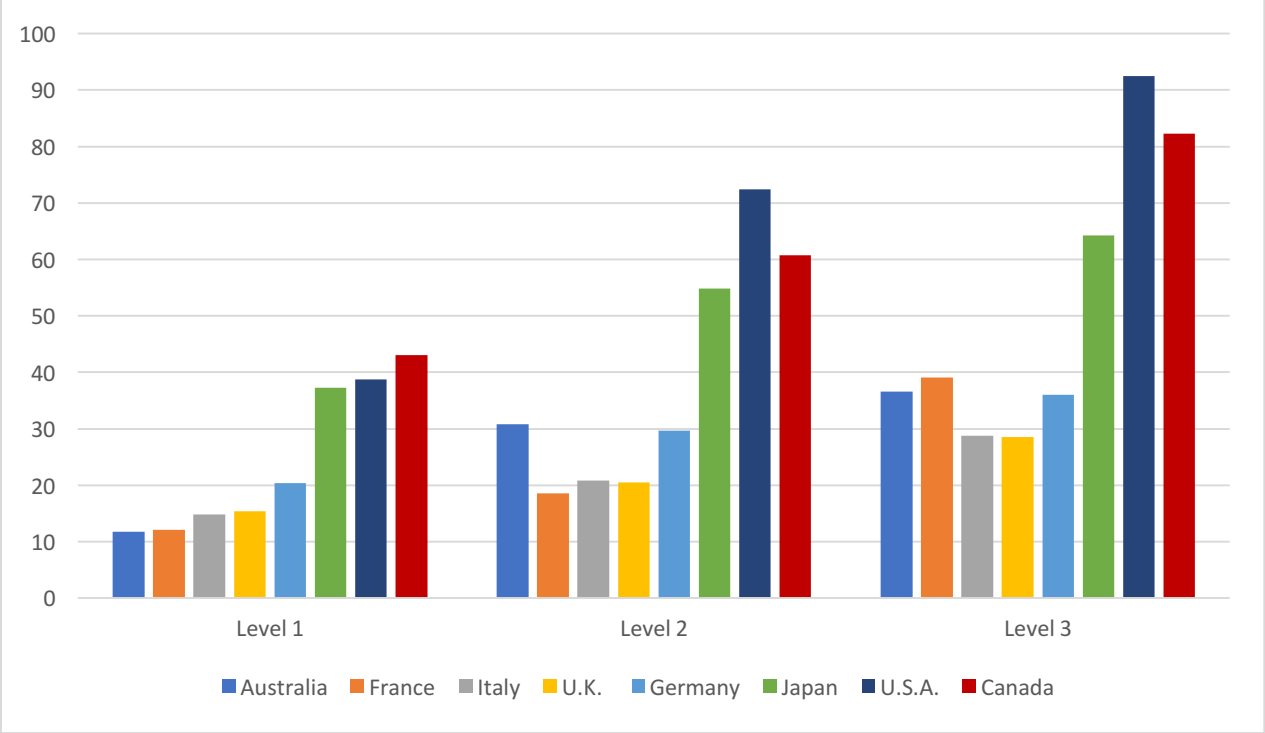


Source: Nordicity, 2017 Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions, pp. 95-97. Available at: https://www.ic.gc.ca/eic/site/693.nsf/vwapj/Nordicity2017EN.pdf/$file/Nordicity2017EN.pdf
Notes: Level 3: 1,200 minutes, 300 SMS, & 1 GB data. Level 4: Unlimited minutes, SMS, & 2 GB data.
Level 5: Unlimited minutes, SMS, & 5 GB data. No data available for level 3 price basket in Japan. "PPP-Adjusted CA$" refers to prices in Canadian dollars, adjusted according to the "purchasing power parity" method of international pricing comparison. For more information, see the included glossary of terms.

For each of the mobile telephony baskets presented in figure 15 above, 2017 Canadian prices were the most expensive, in all three cases more than doubling the lowest-priced offer available.[60] For mobile plans with 1,200 minutes, 300 SMS, and 1GB, the Canadian plan was $70.70, $6.67 more than the same plan in the next closest country (Germany), $31.62 more than Australia, and $50.19 more than the lowest (Italy). For plans with unlimited minutes, SMS, and 2GB, Canada was again the most expensive at $81.61, $27.32 more than the same plan in Australia, and $49.74 more than the lowest priced plan (France). For the 5GB tier, Canada's price of $104.49 was the highest, $37.45 more than in Australia and $65.30 more than the French plan, which was the least expensive in this tier at $39.20. A similar situation prevails for mobile broadband plans (i.e. mobile data plans that do not include a voice or SMS component), as is shown in figure 16, below.

[60] Nordicity presents 6 mobile wireless telephony service baskets. The first two have been excluded above, since they do not include a data component. The sixth basket is for "shared" data plans, i.e. those plans that require a subscriber to have more than one service in order to be eligible to sign up for that plan. We have selected the level 2-4 baskets above because they are the most relevant to the present proceeding. The other baskets in the Nordicity report do not show substantially different trends. In each case, Canadian mobile plans are also among the most expensive of those surveyed. For level 1, Canadian plans are the second most expensive of five countries surveyed. For level 2, Canadian plans are the third most expensive out of six countries, and for level 6, Canadian plans are the second most expensive of five countries surveyed.

Figure 16: International Comparison
Prices for Mobile Wireless Internet Service Baskets, Levels 1-3
2017, PPP-Adjusted CA$



Source: Nordicity, 2017 Price Comparison Study of Telecommunications Services in Canada and Select Foreign Jurisdictions, pp. 95-97. Available at: https://www.ic.gc.ca/eic/site/693.nsf/vwapj/Nordicity2017EN.pdf/$file/Nordicity2017EN.pdf
Notes: Level 1: 2GB to less than 5GB. Level 2: 5GB to less than 10GB. Level 3: 10GB and more.

For mobile broadband plans without a voice or SMS component (i.e. data-only plans), Canada was among the top two most expensive countries for each of the three service tiers covered by the Nordicity study. Of particular note with respect to the present proceeding, Canadian mobile broadband plans between 2GB and 5GB, the lowest tier studied, were the most expensive. In this tier, the price in Canada of $43.01 was more than double that found in five of the eight countries studied.

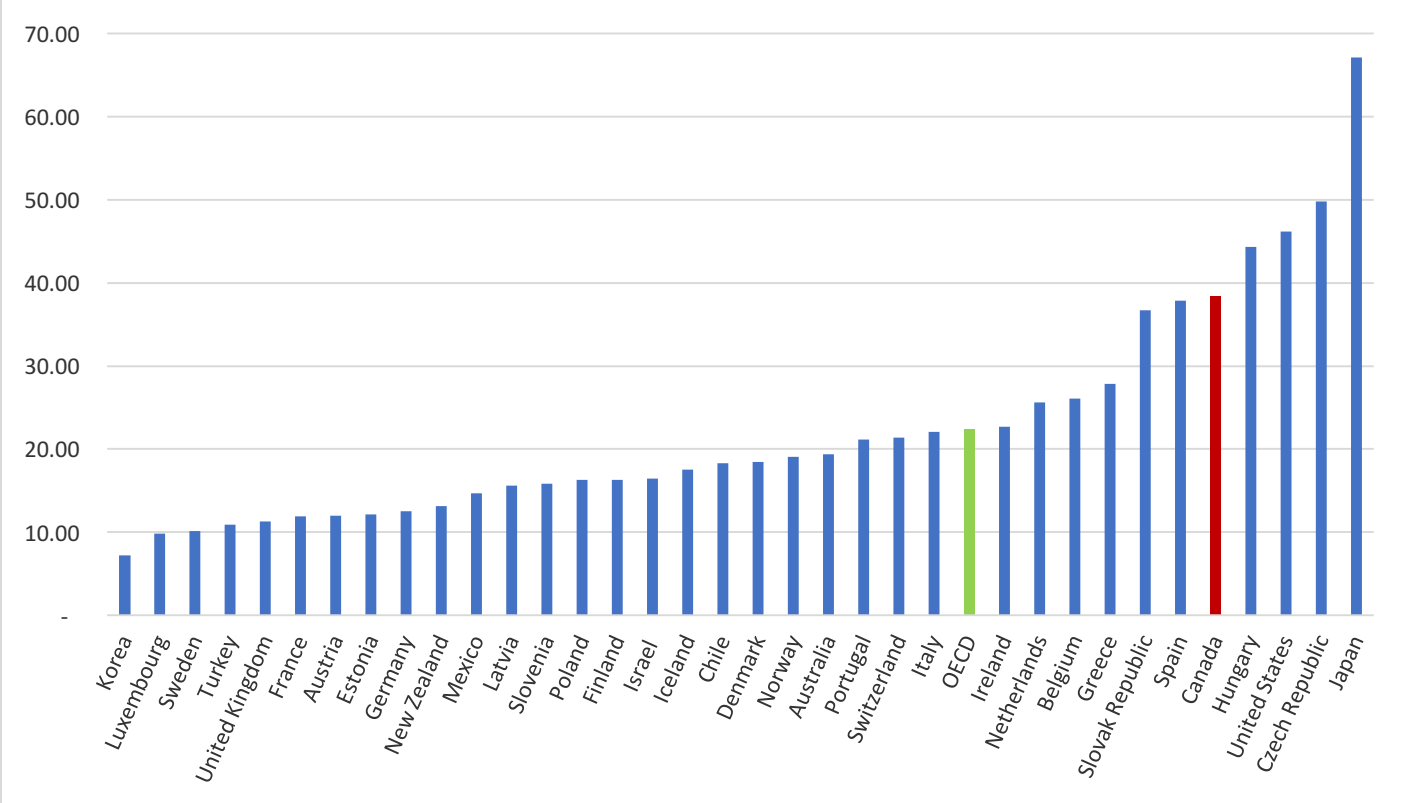
The Nordicity study is not alone in its findings. There is a litany of studies offering international comparisons of mobile pricing, each of which employs a unique methodology to present and analyse the available data. Similar to the Nordicity study, these reports all point to the same conclusion regarding the international standing of Canada's mobile pricing. Simply put, mobile wireless services in Canada are more expensive than they are virtually anywhere else. In what follows, we present a selection of data from the International Telecommunications Union (ITU), the OECD, Finnish consultancy Rewheel, and the US Federal Communications Commission. As is explained below, each provides a perspective that is of particular relevance to the present proceeding.

The Nordicity report does not present data on mobile wireless plans that include data in amounts less than 1GB. Because the carriers' proposals for "lower-cost data-only plans" range from offering 400 to

600 MB of data, in the charts below we present relevant comparisons of plans that include between 500MB-1GB of data, drawing on OECD and ITU data. These data are particularly relevant to the present proceeding, as these plans can be considered "entry level" offerings that are most likely to be options considered low income people in Canada who could not afford the more expensive options at the higher range of offers in the market.

The first data we present are from a survey conducted by the OECD of mobile broadband plans that included at least 100 calls and 500 MB of data as of May 2017 (figure 17). The data in this survey include applicable taxes, and are calculated using the purchasing power parity method, in terms of USD$. As the figure below clearly shows, at $38.38 USD PPP, Canadian plans were notably more expensive than the OECD average of $22.46 USD PPP. Indeed, Canada ranked at a disappointing 31st of the 35 countries covered in the comparison. The price of Canadian plans was nearly double the Australian price ($19.34 USD PPP), and only less expensive than plans in Hungary ($44.30 USD PPP), the US ($46.21 USD PPP), Czech Republic ($49.79 USD PPP), and Japan ($67.16 USD PPP).

Figure 17: OECD Mobile broadband basket,
Low user, including 100 calls + 500 MB, May 2017, VAT included, USD$ PPP

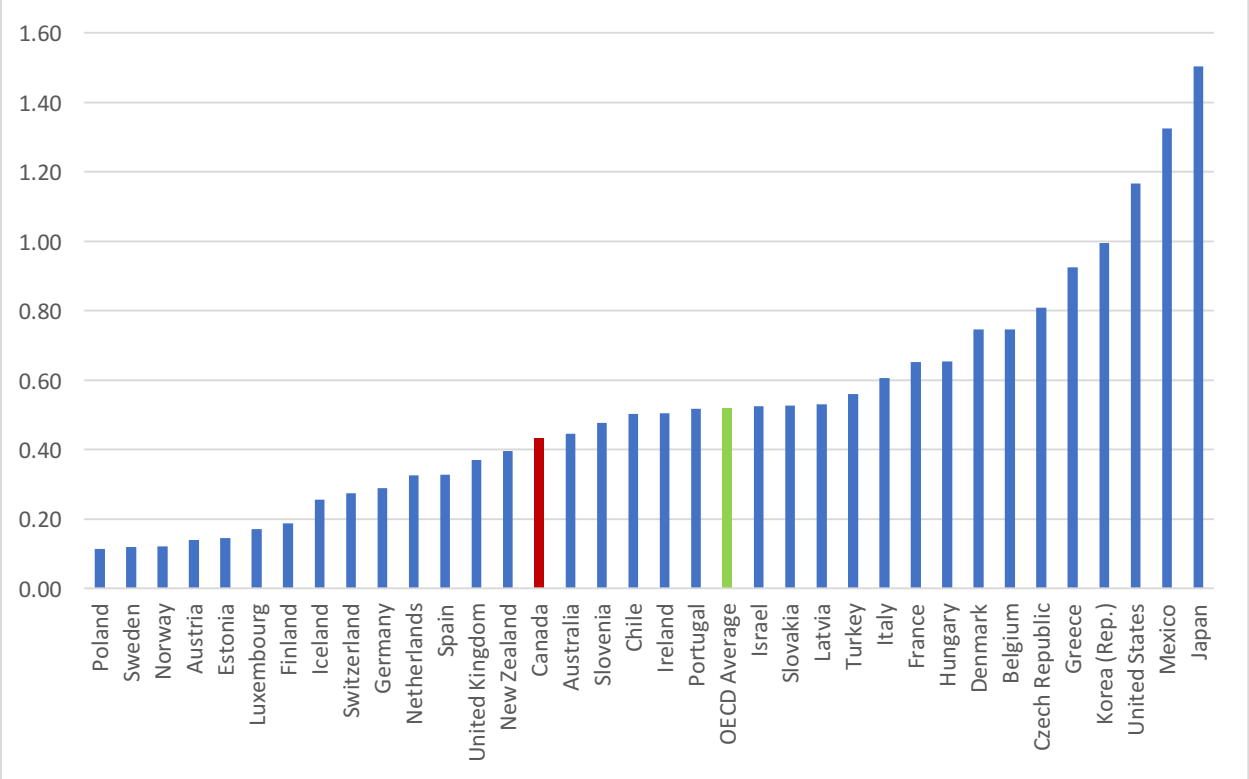


Source: OECD Broadband Portal. Available at: http://www.oecd.org/sti/broadband/broadband-statistics/

The data we present in figure 18 are drawn from the International Telecommunications Union (ITU)'s World Telecommunications Indicators Database. The most recent data available from the ITU pertain to 2016 prices, and the plans surveyed were "prepaid" type plans that included 500 MB of data. This figure presents prices as a function of gross national income (GNI) per capita, or, in other words, in terms of

average income, a measure that is of particular relevance when considering the relationship between price and affordability, since it presents pricing as a function of average income and thus draws a direct link between the two variables.

Figure 18: Mobile-broadband,
prepaid handset-based (500 MB), 2016, As % of GNI per capita



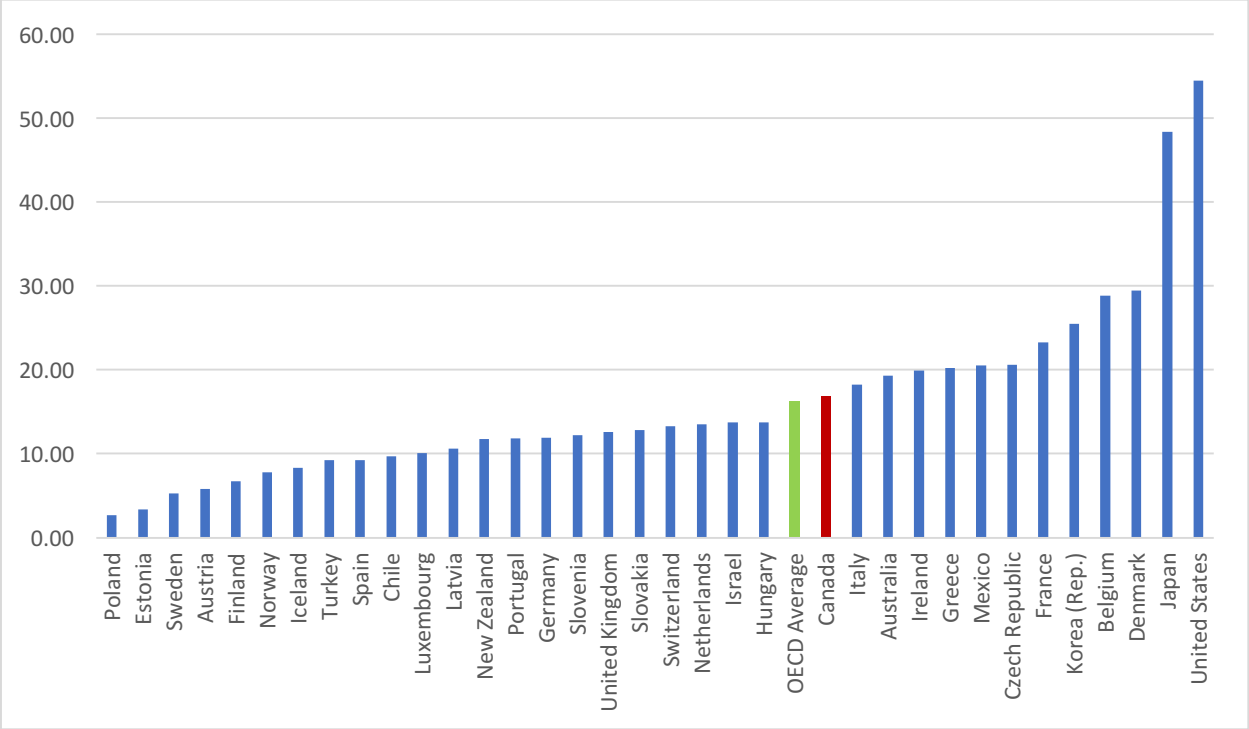
Source: ITU (2017). ICT Price Tables—Mobile-broadband,
prepaid handset-based (500 MB). World Telecommunications Indicators Database.

As figure 18 shows, Canada does perform better than the OECD average on this measure, at 0.43 vs. 0.52, respectively. However, at a rank of 15th out of 35 countries measured, Canada can be classified as a middling performer at best. Furthermore, we note that the presentation of data by average income does not account for differences in income level between households within countries. While this figure suggests that Canadian prices for a 500MB mobile broadband plan may be within the mid-range of affordability for people in Canada earning an average annual income,[61] the same conclusion cannot be drawn with respect to the low-income people which the Commission has identified as a specific concern of the present proceeding. As our earlier analysis of adoption levels by income at the provincial and national level showed, for many people earning low income in Canada, mobile phone service remains out of reach.

[61] The ITU uses GNI per capita in USD for 2015 as a reference point for this and the other ITU figures presented here. For Canada, that figure was USD$ 47,250. According to Statistics Canada, the average before-tax income of a Canadian household (average of all quintiles) in 2016 was CAD$ 91,358. Average annual before-tax income for the lowest- and second-lowest income quintiles for 2016 were CAD$ 19,559 and CAD$ 43,436.
Source: Statistics Canada (2018). Survey of household spending in 2016. "Dwelling characteristics, by household income quintile, Canada, 2016".

The ITU also presents 2016 comparative data for the same mobile broadband basket (i.e. plans that include 500MB) using the purchasing power parity (PPP) measure rather than as a percent of GNI per capita. On this measure, Canada is also a middle performer, coming in slightly worse in terms of PPP than GNI per capita with a rank of 23nd out of 35 countries measured. At USD$ PPP 16.84, Canada was slightly above the OECD average of USD$ PPP 16.25, as show in figure 19.

Figure 19: Mobile-broadband,
prepaid handset-based (500 MB), 2016, PPP, USD$



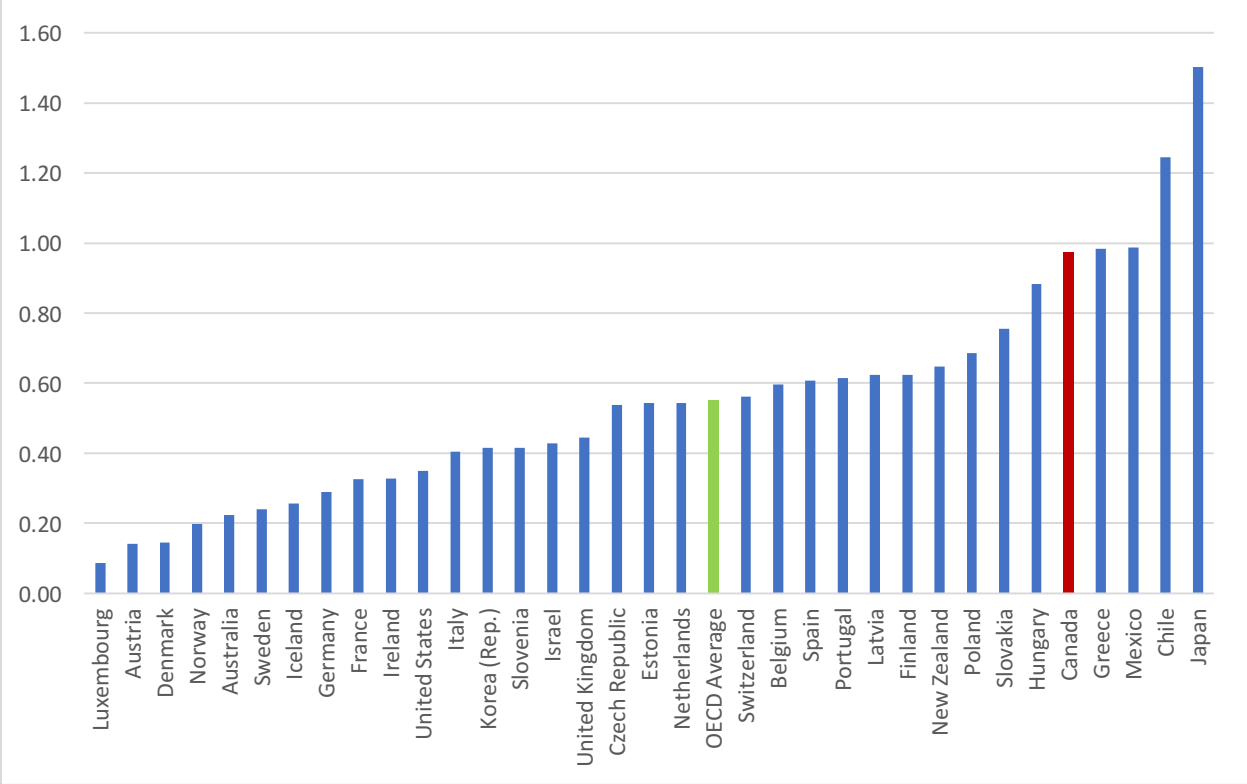
Source: ITU (2017). ICT Price Tables-- Mobile-broadband,
prepaid handset-based (500 MB). World Telecommunications Indicators Database.

For mobile data-only plans, the ITU presents statistics for postpaid computer-based plans that include 1GB of data for the year 2016. These plans are of specific relevance to this proceeding for two reasons. First, the Commission is considering how to formulate a standard with respect to what "lower-cost data-only" plans should be placed on offer, and, unlike several of the other comparisons presented, this plan only provides data (i.e. no voice or other cost components related to transmission such as SMS). Second, the 1GB figure more closely reflects the volume of mobile data that Canadians on average actually use than do lower-usage plans such as the 500MB plan.[62] Third, we note that the functions performed by the carrier are identical regardless of whether the end user connects a smartphone or computer to the network.

[62] As we discuss at greater length below, OECD data show that data usage for mobile broadband services in Canada was 1.49GB per subscription per month in 2016.

On the basis of price for 1GB postpaid computer-based plans, as a percentage of GNI per capita, figure 20 shows that Canada was among the worst performing countries in the OECD. It placed 30th out of 35 OECD countries, and, at 0.97%, was nearly twice as high as the OECD average of 0.55% GNI per capita.

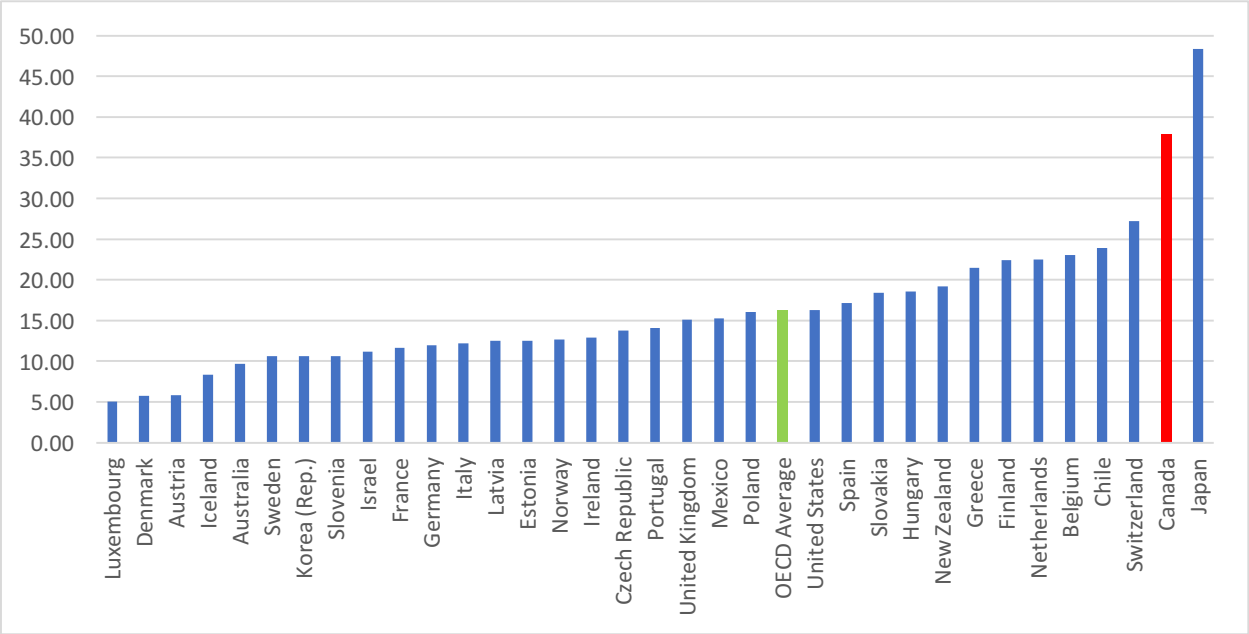
Figure 20: Mobile-broadband,
postpaid computer-based (1 GB), 2016, as a % of GNI per capita



Source: ITU (2017). ICT Price Tables-- Mobile-broadband,
postpaid computer-based (1 GB). World Telecommunications Indicators Database.

According to ITU data, for the same plan as shown above (figure 20) but measured by PPP in USD$ (shown below in figure 21), Canada's postpaid computer-based 1GB mobile broadband plans compared even less favourably than they did with respect to GNI per capita. In terms of PPP in USD$, Canada was second worst among OECD countries (i.e. 34th of 35) at $37.89 USD PPP. In the United States, such plans were less than half as expensive at $16.32 USD PPP, nominally above the OECD average of $16.31 USD PPP. Canada's price for this service offering was nearly four times the price of Australian mobile broadband plans ($9.66 USD PPP) and more than seven times the least expensive, which were found in Luxembourg at a rate of $5.05 USD PPP.

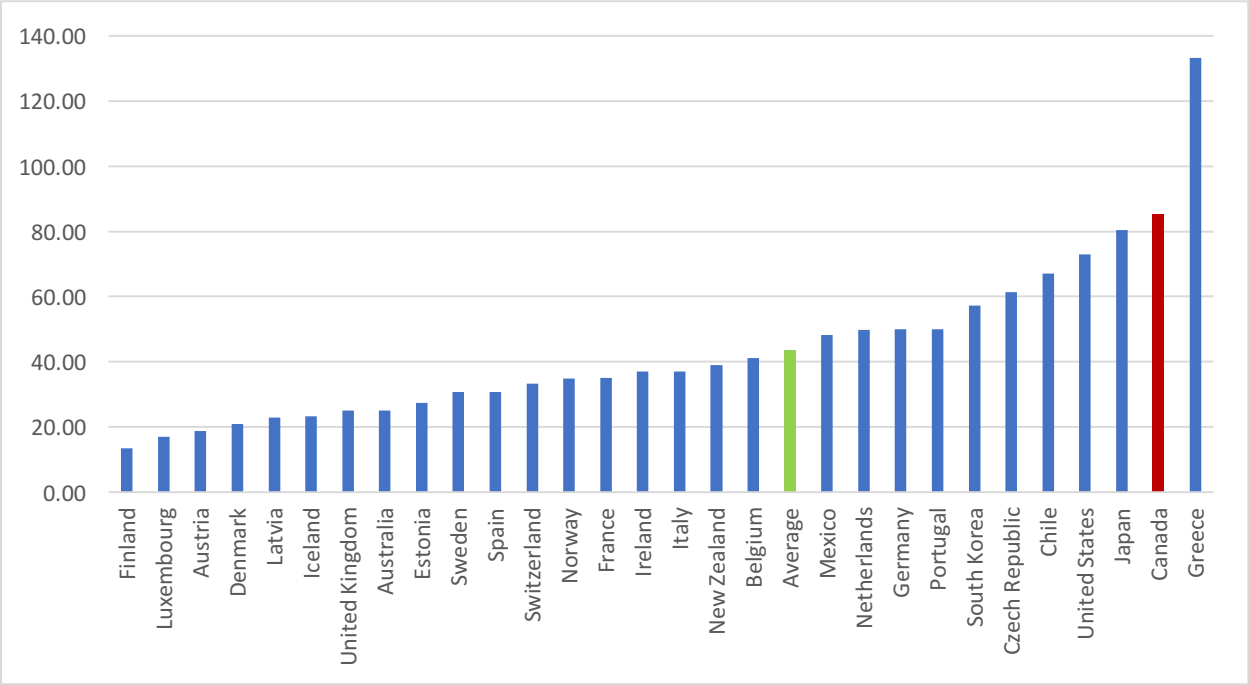
Figure 21: Mobile-broadband,
postpaid computer-based (1 GB), 2016, PPP, USD$



Source: ITU (2017). ICT Price Tables-- Mobile-broadband,
postpaid computer-based (1 GB). World Telecommunications Indicators Database.

Figure 22 (below) shows data from the United States Federal Communications Commission (FCC) for the year 2017, again measured using PPP, which confirm the observation that Canada fares poorly with respect to the mean monthly plan charge for smartphone data plans with usage limits ≥2 to <5 GB. For these plans, the FCC presents data for 29 of the OECD countries. Of these countries, Canada ranked 28th, or second most expensive, at $85.25 USD PPP, nearly double the average of $43.74 USD PPP. Only Greece had plans of this type that were more expensive ($133.10 USD PPP), while the such plans in the United States ($72.99 USD PPP) came in slightly lower than Canada. The price of plans in Australia ($25.01) was less than a third the price of Canadian ones, while plans in the cheapest country, Finland ($13.43) were less than one sixth the price of Canadian plans.

Figure 22: Mean monthly plan charge for smartphone data plans with ≥2 to <5 GB Usage Limit 2017 (PPP$)

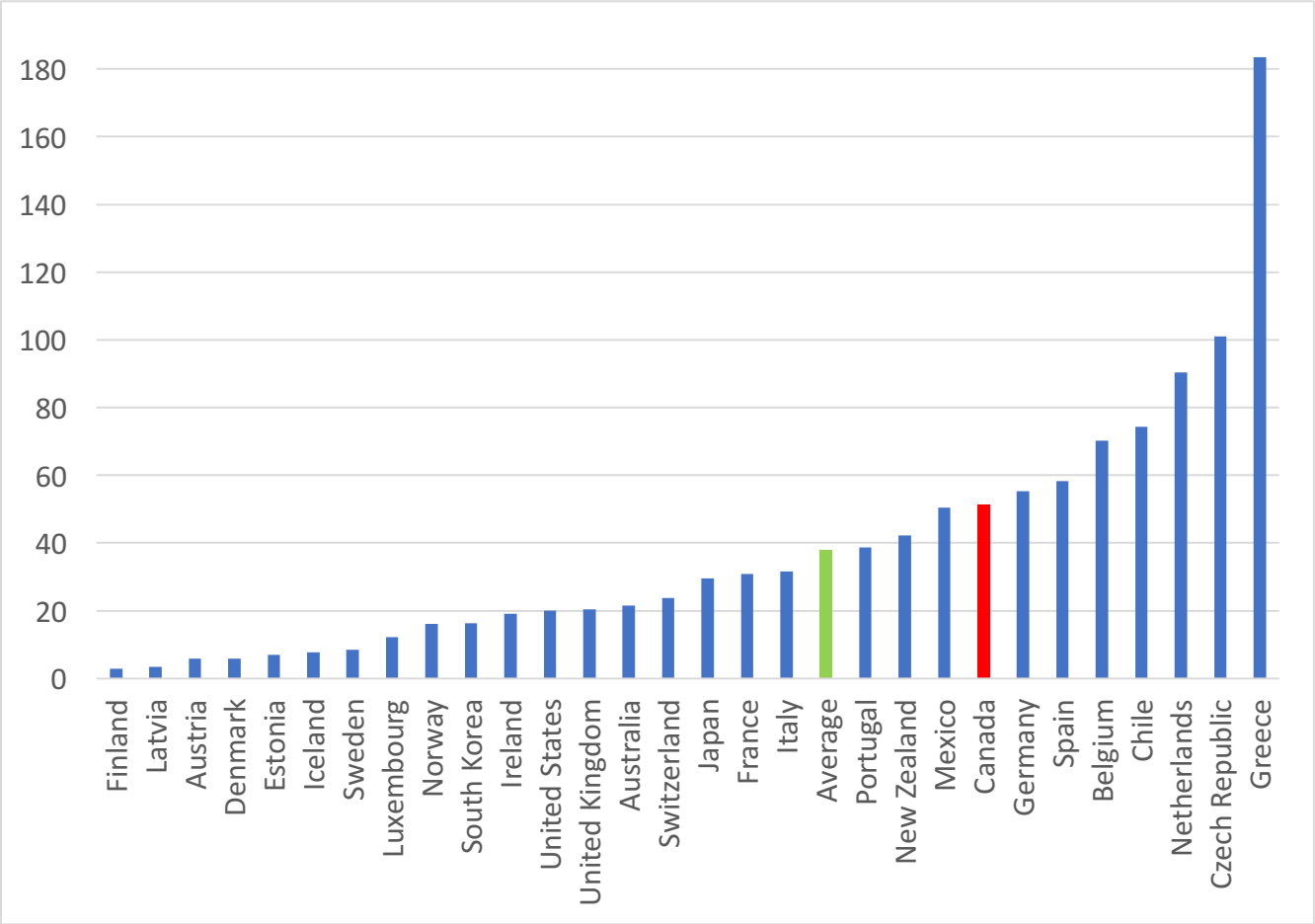


Source: FCC (2018) International Broadband Data Report. 6th. ed, Table 5. Available at: https://apps.fcc.gov/edocs_public/attachmatch/DA-18-99A1.pdf

The US FCC has also compiled a composite measure of the price per GB of mobile data for the period July-August 2017, again using the PPP measure (figure 23 below). In order to calculate this measure, the FCC estimates "a hedonic regression model to adjust prices for country-level differences in cost and demographic factors, differences in mobile broadband product quality (e.g., plan usage limits) and content quality."[63] Even controlling for quality as described above, Canada fares poorly by this measure, as shown in the figure below. It ranked 22 of 29 countries surveyed with a 2017 price per GB of $51.38 PPP, substantially higher than the average of $37.88 PPP. The US, by contrast, ranked 12th, at $20.02 PPP, while Australia ranked 14th at $21.48 PPP.

[63] FCC (2018) International Broadband Data Report. 6th. ed, Table 7:Mobile Broadband Price Indices (PPP), pp. 70-71. Available at: https://apps.fcc.gov/edocs_public/attachmatch/DA-18-99A1.pdf

Figure 23: Mobile Broadband Price Indices:
Price/GB of Mobile Data (July-August, 2017) (PPP)



Sources: FCC (2018) International Broadband Data Report. 6th. ed, Table 7: Mobile Broadband Price Indices (PPP), p. 70. Available at: https://apps.fcc.gov/edocs_public/attachmatch/DA-18-99A1.pdf

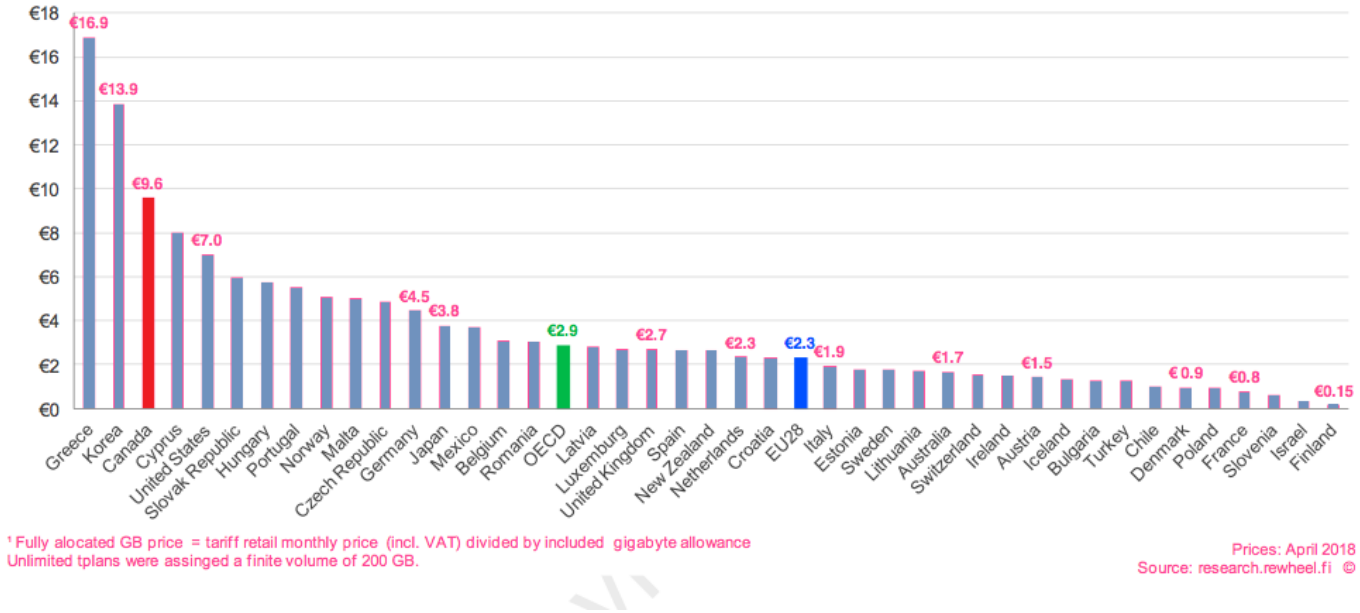
The FCC's findings on Canada's relative international performance with respect to per GB pricing is also broadly confirmed by the independent analysis of Finnish consultancy Rewheel. Rewheel calculates a median "fully allocated gigabyte price" metric in order to make meaningful international pricing comparisons. As Rewheel explains, the "[f]ully allocated GB price = tariff retail monthly price (incl. VAT) divided by [the] included gigabyte allowance" with unlimited plans being assigned a finite volume of 200GB. The values presented by Rewheel represent the country-specific median price; Rewheel further explains its method as follows: "when calculating the country median we have used the fully allocated gigabyte prices from all the eligible plans of operator main brands, their sub-bands and the MVNOs we tracked".[64]

Rewheel's findings are presented in the following two figures, which refer to the country median fully allocated GB price for 4G smartphone plans with at least 1,000 minutes & featuring 3Mbit/s speeds, and for 4G LTE mobile broadband plans with at least 3Mbit/s (i.e. mobile broadband plans that do not

[64] Rewheel Research (2018). "Digital Fuel Monitor: The state of 4G pricing—1H2018, Digital Fuel Monitor 9th release", p. 34.

include a voice feature), respectively. Both figures are presented in Euros, and were current as of April 2018.

Figure 24: Fully Allocated Gigabyte Price
(4G smartphone plans with at least 1,000 minutes & 3Mbit/s for HD video)
€, April 2018, Country median



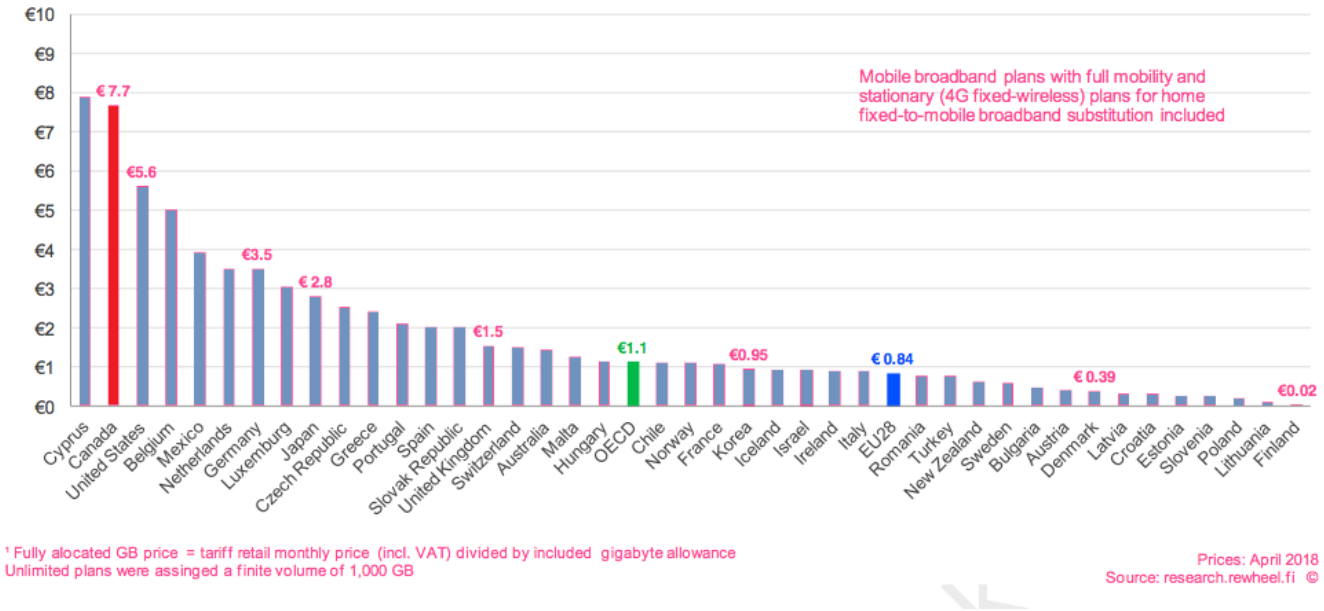
Source: Rewheel Research. Digital Fuel Monitor. "The state of 4G pricing—1H2018, Digital Fuel Monitor 9th release". 1st May, 2018.

For smartphone plans, Rewheel's data show that Canada, at €9.6 per GB, was ranked 39th of 41 countries surveyed, or in other words, a GB in Canada was the 3rd most expensive. The price of a GB in Canada was more than 3 times as much as the OECD average price, and was more than four times as expensive as the EU28 average. Rewheel describes the prices found in Canada (together with those found in the US and Korea) as "exorbitant" and a "universe apart" from those found in countries like France.[65] It groups Canada together with other "laggard countries such as Greece, Cyprus, [and] Malta", and attributes the dramatic difference in price to the laggards' status as "non-competitive markets".[66]

Rewheel's findings with respect to data-only mobile broadband plans are very similar to the situation for smartphones. As figure 25 below shows, a fully allocated GB of mobile broadband data in Canada was €7.7 as of April 2018. This was cheaper than the price in only one country: Cyprus. This places Canada in 40th place of the 41 countries measured, or 2nd most expensive on this measure. Canada's price of €7.7 per mobile broadband GB was 7 times the OECD average and more than 9 times the average price of a mobile broadband GB across the EU28 countries.

[65] Ibid., p. 3.
[66] Ibid., p. 20.

Figure 25: Fully Allocated Gigabyte Price
(4G LTE mobile broadband plans with at least 3Mbit/s for HD video)
€, April 2018, Country median



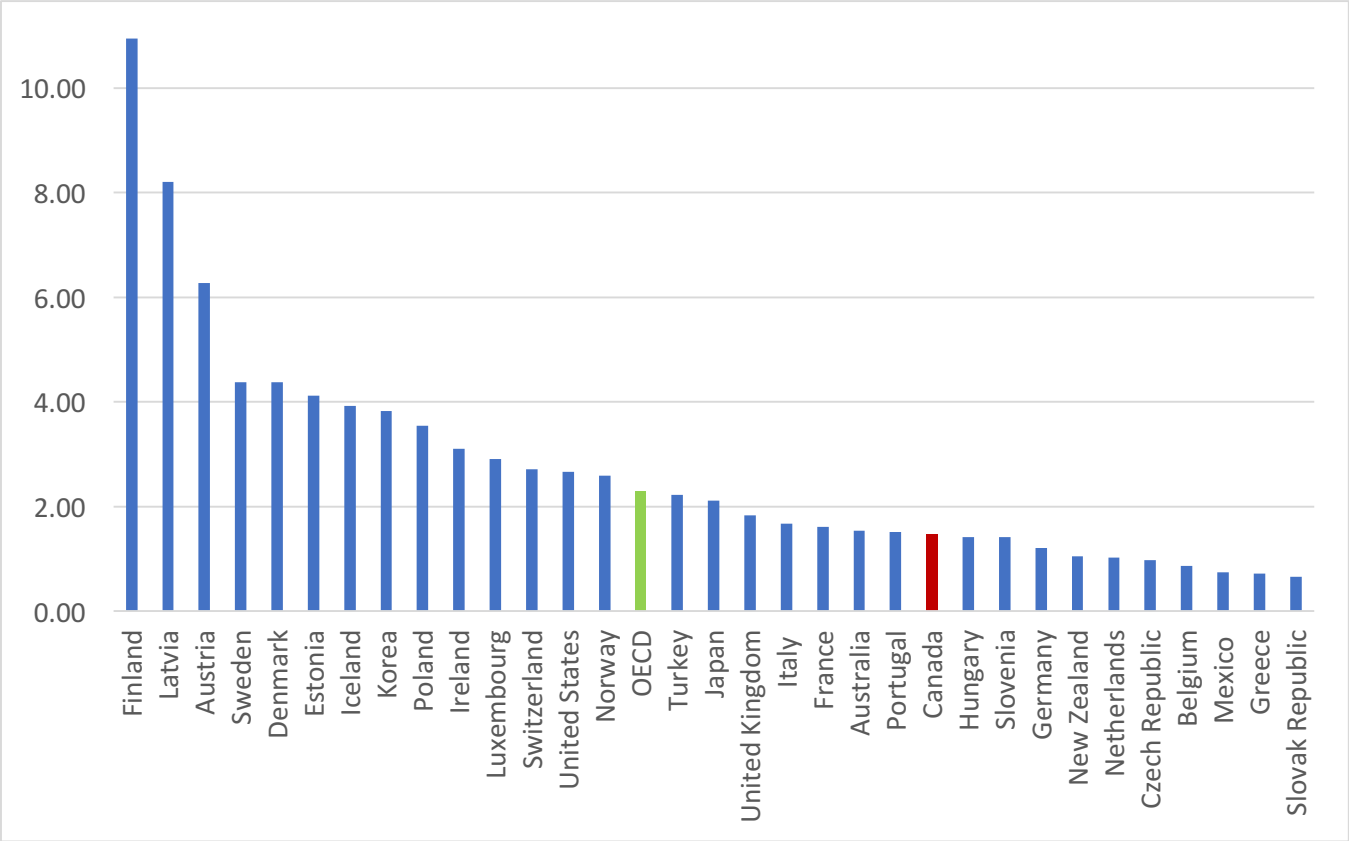
Source: Rewheel Research. Digital Fuel Monitor. "The state of 4G pricing—1H2018, Digital Fuel Monitor 9th release". 1st May, 2018.

Rewheel also produces international comparisons of how many GB a subscriber can purchase for a set price, ranging from €5 to €80. While we do not reproduce those comparisons here (for brevity's sake), Canada places no better than 33rd of 41 countries measured for any of these measures, and indeed, is among the 5 most expensive countries surveyed for all but two of the eleven sets of comparisons.[67]

The last figure we present in this section on pricing (figure 26, below) shows an OECD international comparison of mobile data usage per mobile broadband subscription as of December 2016. Despite sometimes being portrayed as heavy users of communication services, these data show that people in Canada use relatively less mobile data than people in other comparable countries. The OECD data show that subscribers in Canada consume on average 1.49 GB per month, compared to the OECD average of 2.3GB. This places Canada in 23rd place of the 32 countries for which data are available. People in the US used 2.67 GB per month, while in Finland, which has the most prolific usage of the countries measured, people used 10.95 GB monthly, representing more than 7 times as much usage as their counterparts in Canada. A similar picture is presented by Cisco data, which show that mobile data usage in Canada in 2016 was 1.42 GB per month compared to 3.5 GB in the United States.[68]

[67] Ibid., p. 12.
[68] Cisco (2018). "VNI Forecast Highlights Tool", Accessed May 21, 2018. Available at: https://www.cisco.com/c/m/en_us/solutions/service-provider/vni-forecast-highlights.html#

Figure 26: Mobile Data Usage Per Mobile Broadband Subscription, 2016



Source: OECD Table 1.14 Mobile Data Usage per Mobile Broadband Subscription. Available at: https://www.oecd.org/internet/broadband/broadband-statistics/

High prices cause affordability problems

The data presented above are relevant for several reasons. First, it is surprising that people in Canada, who are often portrayed as prolific users of communication services, in fact use less mobile data than the average of OECD countries. It is our opinion that this phenomenon is a direct result of the comparatively high prices that characterize the Canadian mobile wireless market. As the affordability report commissioned by the CRTC observed:

> From the perspective of consumers, affordability is broadly viewed as a combination of pricing and income variables, as well as the subjective value individuals derive from spending scarce resources on particular goods and services. Traditional economic theory simplifies the concept of affordability in terms of the consumer's "willingness to pay" (i.e. demand), which tends to increase with incomes and decline with prices.[69]

[69] Rajabiun, R., Ellis, D., & Middleton, C. (2016). "Literature review: Affordability of Communications services", Report commissioned by the Canadian Radio-television and Telecommunications Commission, p. 1, emphasis added. Available at: https://www.ryerson.ca/~cmiddlet/ourresearch/lit-review-for-crtc-2016-affordability-rajabiun-ellis-middleton.pdf

Expanding further on this dynamic, Rajabiun, Ellis, and Middleton explain:

> Even in countries with high average incomes such as Canada, individuals with very low or no income must balance their spending on access to communications services against spending priorities for other essentials such as food and shelter. Although consumers with higher incomes can afford to pay higher prices for higher quality services, the extent to which low-income individuals can afford services of quality sufficient to meet their individual requirements depends on the level and range of the price/quality combinations on offer in the market.[70]

Clearly, this is not a situation that has been resolved by market forces, nor have regulatory and policy initiatives to date erased Canada's "digital divide", despite sustained efforts over the past decade. The affordability study describes the problem as follows:

> The incentives of operators to offer low-cost options is often limited in both the early stages of market development, when only a small number of early adopters value a given service sufficiently to pay for it, and in mature markets where the service has become essential to most consumers. Monitoring the evolving pricing structure of the industry offers an important window into understanding affordability as an economic constraint on consumers. To the extent that more affordable communications services are crucial to the growth of the broader ICT economy, network access price and quality information can be particularly valuable to policymakers trying to promote productivity growth and economic development.[71]

It is in the spirit of these observations on the importance of utilizing empirical data and analysis to inform policy development that we have conducted the detailed study presented above. The figures we have presented on overall adoption, adoption by income, and service pricing therefore bring crucial perspective when considering why people in Canada are using less mobile data than their peers: based on the evidence shown above, it is our opinion that Canada's low mobile adoption, and low mobile adoption amongst those earning lower levels of income in particular (i.e. those in the lowest income quintile, and to a lesser extent, those in the second lowest quintile), is explained primarily by the fact that mobile services in Canada are so expensive. In other words, contrary to the assertions of carriers such as Bell Mobility and Telus, mobile services remain unaffordable for many in Canada.

This conclusion is also supported by the authors of the affordability study, who found that:

> While lack of interest or low skill levels partially explain lower adoption and use among low-income individuals, cost remains a dominant motive for why low-income Canadians do not use the Internet. Nevertheless, the growing essentiality of broadband and increases in the inelasticity of demand to price, along with country-specific factors, enable incumbent operators in Canada to charge prices that are higher than offerings by their counterparts in most other advanced economies. International comparisons also suggest that the range of low-cost options available in the Canadian market tend to be relatively limited, meaning that low-income households are likely to have fewer affordable options in service plans than their counterparts in other advanced economies.[72]

[70] Ibid, p. 2, emphasis added.
[71] Ibid, p. 12, emphasis added.
[72] Ibid, p. 25, emphasis added.

In the final section of this report, we assess the specific proposals that the national carriers (i.e. Bell, Rogers, and Telus) have submitted to the Commission in this proceeding. We are of the view that these proposed plans are not likely to meet the affordability needs of people earning a low income in Canada. Based on this assessment, we also are concerned that the plans proposed by the carriers, and specifically their pricing, cannot be considered "just and reasonable" by either the standard of a price level that reflects the cost of service provision plus a reasonable markup,[73] or by the requirement that telecommunications services meet the social and economic requirements of users.[74] In light of the evidence, we question whether a policy of unconditional retail forbearance can or should maintained by the Commission, and suggest that to do so may in fact be inconsistent with the legislated telecommunications policy objectives as well as the standards for forbearance established in section 34 of the *Telecommunications Act*. Simply put, we believe that the evidence presented in this report and by others over the course of this proceeding shows that competition in the mobile wireless sector has been insufficient to protect the interests of users—as demonstrated by the persistent lack of access to affordable mobile services facing lower-income people in Canada--and therefore that the Commission must take concrete action to address the situation.

Finally, based on our assessment of the carriers' proposals, and using other relevant information, we provide several recommendations about the shape that a solution to the problems described above might take.

Does the cost of providing service make Canada's high rates "just and reasonable?"

Despite the fact that a preponderance of the evidence shows that mobile wireless prices in Canada are substantially higher than they are in comparable countries, and that adoption of mobile services that include a data component are comparatively low, the carriers maintain that "Canadians are receiving exceptional value for their wireless services with access to world-leading wireless infrastructure and services at affordable prices. This success is the result of the competitive retail wireless market in Canada that is based on billions of dollars in private investment and rigorous competitive process".[75] Similarly, Telus argues that "[t]he best evidence of the strength of the wireless marketplace in Canada lies in its overall performance, especially when considered according to the incentives of service providers to innovate and invest […] Wireless providers in this country are all investing scarce capital dollars to deliver the best network experience for their customers".[76]

Indeed, the argument that international comparisons of pricing data do not adequately account for network quality or the high relative cost of building networks in a "vast and sparsely populated country"[77] like Canada are nothing new. These arguments have been frequently invoked by the carriers

[73] The Commission's current range of acceptable markups ranges from 15 to 40 percent. See: CRTC (2016). "Informational session costing principles and concepts: telecommunication industry". Available upon request from the authors. See also: Telecom procedural letter addressed to distribution list, Re: CRTC Informational sessions on telecommunication services costing principles & concepts, available at: https://crtc.gc.ca/eng/archive/2016/lt160120.htm and associated reference: https://crtc.gc.ca/partvii/eng/2008/8638/c12_200805906.htm

[74] This requirement is found in the *Telecommunications Act*'s section 7 objectives, and additionally competition sufficient to protect the interests of users is the key criterion in determining whether the Commission may, or shall, forbear from the regulation of telecommunications services pursuant to section 34 of the *Act*.

[75] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para 23.

[76] Telus (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", paras. 47 & 48, respectively.

[77] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para 1.

and others to justify the high price levels that prevail in the Canadian mobile wireless market. An article from Telus's blog in 2013, written by Telus senior vice president Ted Woodhead, argues the following: "When you consider our enormous investment, challenging geography, sparse population and outstanding networks Canada really SHOULD be the most expensive country for wireless service in the OECD, but we're not. That's a great success story we should be celebrating".[78] Telus' proposal in the present proceeding also relies on a report by consultant Jeffrey Eisenach which makes similar arguments in an effort to discredit the Nordicity report's findings that Canadian mobile wireless prices are expensive and unaffordable.[79] For instance, the Eisenach report argues that "by failing to account for differences in service quality and usage, as well as underlying cost factors, the Nordicity Report ignores the fact that Canadians are getting more for their mobile broadband dollar than consumers in low-price/low-performance countries in Europe".[80]

These arguments have been echoed more recently in a report entitled "The state of competition in Canada's telecommunications Industry—2018"authored by Martin Masse under the banner of a free-market think tank called the Montreal Economic Institute (MEI).[81] While the MEI report concedes that "[t]he prices Canadians pay for telecommunications services according to Nordicity's international comparisons remain generally higher than in most countries", it nevertheless attempts to cast aspersions on the Nordicity report's methodology and conclusions. Instead, the MEI argues that, because "Canada's density of wireless connections per km^2 is one of the lowest in the world", and since the level of telecommunications investment in Canada "outshines most other countries […] [t]he average bill that Canadians pay for their wireless and internet services keeps increasing not because they have to pay more for the same services, but because they are paying for more and better services".[82]

The essence of all these arguments is two-fold. First, it is argued that international comparisons are generally inapt, since these comparisons do not always account for the quality of networks. According to this line of argument, the relatively high quality of Canadian networks is shown by reference to performance metrics (e.g. speed and coverage) as well as the comparatively high level of investment (i.e. cost) in Canada's networks. Second, it is argued that the prices facing wireless subscribers in Canada, even when it is conceded that they are comparably high, are economically justified, because they reflect the high cost of building networks, and that Canadians "are paying more for more and better services".[83]

We have already addressed the issue of network quality above, in the discussion of LTE availability and LTE speed. Briefly, this discussion showed that Canada is a middle performer in terms of LTE availability, and, while speeds are on the high side at 9th of 33 countries surveyed by OpenSignal, Canada's measured speed of 32.9 Mbps is not remarkably higher than the OECD average LTE speed of 28.4 Mbps. In other

[78] Woodhead, T. (2013). "Scratch the surface and the shine comes off critic's mythology". *Telus Blog*. Available at: https://blog.telus.com/public-policy/scratch-the-surface-and-the-shine-comes-off-critics-mythology/

[79] Report of Dr. Jeffrey Eisenach at para 59, submitted by TELUS as expert evidence in TNC2017-259. Dr. Eisenach is an economist and Managing Director and Co-Chair of NERA's Communications, Media, and Internet Practice. For its submissions in TNC 2017-259, TELUS asked Dr. Eisenach to provide the objective evidence of the performance of the Canadian wireless retail marketplace. TELUS submitted this evidence on the record of the proceeding in TNC 2017-259 (the "Eisenach Report") and quotes from that report in its Intervention. See https://services.crtc.gc.ca/pub/DocWebBroker/OpenDocument.aspx?DMID=2963477.

[80] Ibid., para. 77.

[81] Masse, M. (2018). "The state of competition in Canada's telecommunications industry—2018". Montreal: MEI. Available at: https://www.iedm.org/sites/default/files/web/pub_files/cahier0118_en.pdf

[82] Ibid., p. 5.

[83] Ibid.

words, while Canada's mobile networks fare reasonably well on availability and performance measures, the data do not support the conclusion that Canadian wireless networks are "world leading" as the carriers contend.[84]

Furthermore, we note that all of the comparisons do account for quality insofar as they compare plans of similar or equal monthly data volume. This metric is particularly relevant when considering the issue of "lower-cost data-only" plans targeted toward providing affordable access for lower-income people. As we have previously discussed, data volume, not speed, is the more relevant factor in the present situation, since high-speed networks may be of little or no value for people who expect to make small amounts of network usage over extended periods of time, rather than large bursts of usage in short episodes. When volume limits are so small as to be potentially reached in a matter of moments, it is the limit that matters most, not the speed with which it can be reached.

The carriers themselves appear to have recognized that some people value having greater data volumes at lower speeds rather than less data at higher speeds. This is demonstrated by the introduction of "3G" (i.e. LTE access throttled to 3Mbps) plans that include more data volume dollar-for-dollar relative to comparable 4G plans, by national-carrier sub-brands such as chatr and Public Mobile.[85] We note, however, that the introduction of these plans does not appear to have substantially contributed to closing the persistent affordability gap in the Canadian market to date.

Additionally, we note that the FCC data presented above employ "a hedonic regression model to adjust prices for country-level differences in cost and demographic factors, differences in mobile broadband product quality (e.g., plan usage limits) and content quality."[86] These FCC data generally support the conclusion of other sources that Canadian mobile prices are high by relative standards, in some cases dramatically so.

In spite of all this, there are additional reliable data available which allow for an assessment of the carriers' proposed "lower-cost data-only" plans factoring for capital investment and other cost factors. The source of these data, in fact, is the CRTC and the carriers themselves, which, over the course of the past several years, have developed detailed economic cost studies based on the carriers' own regulatory economic cost study manuals. These studies apply to the national carriers' mobile wireless networks and are based on the prospective incremental cost methodology known as the "Phase II" model. While comparable data are unfortunately not available for countries other than Canada, making an international comparison by this metric impossible, it is nevertheless our opinion that the results of these studies are a reliable and accurate measure by which to assess the carriers' proposed "lower-cost data-only" plans on the basis of cost.

[84] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para 23.
[85] See Public Mobile website, "Offer details": "Plans with 4G LTE data can access maximum LTE download speeds (manufacturer rated at up to 750 Mbps; expected average speeds 12-200 Mbps). Plans with 3G data may reach download speeds of up to 3 Mbps, with the coverage and reliability of the LTE network." Accessed May 21, 2018. Available at: https://www.publicmobile.ca/en/bc/plans/40for2GB-3Gspeed
[86] FCC (2018) International Broadband Data Report. 6th. ed, Table 7:Mobile Broadband Price Indices (PPP), pp. 70-71. Available at: https://apps.fcc.gov/edocs_public/attachmatch/DA-18-99A1.pdf

Assessment of carriers' proposed "lower-cost data-only" plans

In Telecom Regulatory Policy CRTC 2015-177, "Regulatory framework for wholesale mobile wireless services", the Commission determined that regulation of wholesale mobile wireless roaming rates is necessary "in light of its finding that wholesale roaming is not subject to a sufficient level of competition".[87] The determination that such regulation is necessary was a direct result of the Commission's finding that, in fact, "Bell Mobility, [Rogers], and [Telus] collectively possess market power in the national market for GSM-based wholesale roaming".[88] In that same decision, the Commission found that "Bell Mobility, [Rogers], and [Telus] collectively possess market power in the national market for GSM-based wholesale MVNO access",[89] although it declined to require that the carriers offer access to third-party service providers (i.e. mobile virtual network operators, or MVNO)s at that time, a decision which it has recently reconfirmed.[90]

In March of 2018, the Commission issued Telecom Order CRTC 2018-99, "Wholesale mobile wireless roaming service tariffs—Final rates". In this order, the Commission approved "on a final basis rates for the wholesale mobile wireless roaming services provided by Bell Mobility, RCCI, and TCI." [91] Additionally, the Commission explained that its determinations "will further enable sustainable facilities-based competition in the Canadian mobile wireless services market. The determinations foster increased investment in high-quality networks by wireless carriers resulting in more affordable and innovative services being available to all Canadians."[92]

The order approving the final rates for the national carriers' wholesale mobile wireless roaming service tariffs came after a lengthy process, the overarching goal of which was to ensure that regional and "new entrant" mobile service providers such as Freedom Mobile, Vidéotron, Eastlink, and Sasktel would be able to effectively compete with the national carriers. While the order only regulates wholesale mobile wireless roaming services, the actual figures arrived at as a result of that process are directly applicable to the national carriers' costs for transmission of data to their own end users. According to the Commission's analysis and determinations:

> The wholesale roaming cost studies submitted by the national wireless carriers are based on an all-carrier approach and include all traffic on the mobile wireless network for each of voice, SMS, and data services. In addition, the studies include costs that are specific to wholesale roaming customers, such as costs related to interconnection, roaming agreement processing, billing, and third-party clearinghouses.
>
> Furthermore, on the basis that there is no difference in the cost to deliver a mobile wireless unit of demand (e.g. a megabyte [MB] of data, a minute of voice, or an SMS) for a national wireless carrier's retail end-user or for a wholesale roaming customer's end-user, the Commission considers it appropriate for costs for all wireless network elements (i.e. the radio access network [RAN], the

[87] Telecom Regulatory Policy CRTC 2015-177, "Regulatory framework for wholesale mobile wireless services", introduction.
[88] Ibid, para. 74.
[89] Ibid, para. 88. An MVNO is a third-party service provider which purchases wholesale access to mobile networks and establishes a direct retail relationship with customers, often offering differentiated products and services not on offer from incumbent firms. For more information, see included glossary of terms.
[90] See: Telecom Decision CRTC 2018-97, "Reconsideration of Telecom Decision 2017-56 regarding final terms and conditions for wholesale mobile wireless roaming service". Available at: https://crtc.gc.ca/eng/archive/2018/2018-97.htm
[91] Telecom Order CRTC 2018-99, "Wholesale mobile wireless roaming service tariffs—Final rates", introduction. Available at: https://crtc.gc.ca/eng/archive/2018/2018-99.htm
[92] Ibid.

backhaul network, and the core network), including spectrum, to be included in the wholesale roaming cost studies.[93]

Although the regulatory requirement to provide service at these rates only applies to wholesale mobile roaming services, the Commission clearly recognizes that the rates themselves are representative of the national carriers' cost for delivery of voice, SMS, and data to retail end-users. As noted by the Commission, these rates are calculated using forecasts of data usage derived from company-specific historical information (i.e. historical unit demand)[94] and account for the cost of "all wireless network elements". These figures are therefore particularly useful when addressing claims that Canadian mobile prices are high because of low population density, challenging geography, or, in other words, that it is expensive to build networks because of the large investments required.

We acknowledge that there are costs associated with the provision of retail services, including sales, marketing and customer service costs, that are different from the costs "related to interconnection, roaming agreement processing, billing, and third-party clearinghouses" included in the wholesale roaming rates. While the information required to compare these costs is not publicly available, we note that the regulated rates include a markup that is designed to enable the carriers to recover fixed common expenses not captured by the underlying causal cost factors that determine the base regulated rate. Examples of the type of costs the markup is designed to recover include those associated with corporate finance, human resources, legal, corporate security, corporate communications, corporate advertising, and regulatory.[95]

Indeed, when considering what magnitude of markup to apply to wholesale mobile wireless roaming rates, which had not been previously regulated, the Commission opted for the maximum rate of 40% as proposed by the national carriers. It explained its decision to do so as follows:

> In Telecom Regulatory Policy 2015-177, the Commission determined that access to the national wireless carriers' wholesale roaming is essential to providing broad or national network coverage so that smaller wireless carriers may compete sustainably in the retail market. The Commission also considered that the establishment of cost-based wholesale roaming rates for the national wireless carriers must take into consideration both an incentive for these carriers to keep investing in and deploying wireless networks, and for new entrants and smaller wireless carriers to invest in areas where they have spectrum.
>
> […]
>
> In light of the above, the Commission considers that the national wireless carriers' proposed markup of 40% responds to the Commission's concerns expressed in Telecom Regulatory Policy 2015-177 regarding the incentive for investment. Further, in light of all of the already discussed adjustments to the national wireless carriers' wholesale roaming rates, the Commission considers that this markup would not represent a barrier to sustainable retail competition. Accordingly, the

[93] Ibid, paras. 22-23, emphasis added.
[94] See: ibid., paras. 91-99.
[95] A comprehensive list is provided in Decision CRTC 2008-14. For more information, see: CRTC (2016). "Informational session costing principles and concepts: telecommunication industry". Available upon request from the authors. See also: Telecom procedural letter addressed to distribution list, Re: CRTC Informational sessions on telecommunication services costing principles & concepts, available at: https://crtc.gc.ca/eng/archive/2016/lt160120.htm and associated reference: https://crtc.gc.ca/partvii/eng/2008/8638/c12_200805906.htm

> Commission determines that a markup of 40% is to be applied to the national wireless carriers' wholesale roaming rates.[96]

In short, the Commission considers that the rates it has set for regulated wholesale mobile roaming, including the 40% markup, maintains the incentive of national carriers to continue investing, on a forward-looking basis, in the same "high-quality" networks that they have built over the course of the past three decades. It also considers that the rates will enable competitors who purchase this roaming access in order to provide their own customers with broad national coverage will also be able to offer retail service at rates commensurate with those which prevail in the retail market.

In its final determination, the Commission confirms the appropriateness of the rates it has set, noting that:

> The Commission has a duty to ensure that the rates paid for regulated telecommunications services are just and reasonable at all times. The Commission considers that the final rates for the national wireless carriers' wholesale roaming set out in this order are just and reasonable, for the reasons set out in this order.[97]

In the following figure (27), we apply the Commission's established rates to the carriers' proposed "lower-cost data-only" plans, in order to serve as the basis for our assessment of whether these plans can be considered reasonably priced in reference to the cost of the data provided by the service(s), or, in other words, as an illustrative means of assessing claims that mobile wireless prices in Canada are high because they reflect the cost of building networks.

Figure 27: Proposed "lower-cost data-only" plans, incl. delivery cost & markup

Carrier	Plan Price	MB included	Carrier's cost/MB	Total cost of data transmission	Markup
Bell Mobility	$30	500	$0.013281	$6.64	**351.8%**
RCCI (Rogers)	$25	400	$0.013978	$5.59	**347.1%**
TCI (Telus)	$30	500	$0.014071	$7.04	**326.4%**
TCI (Telus)	$30	600	$0.014071	$8.44	**255.3%**

Source(s): Carriers' proposals: TNC CRTC 2018-98; Cost per MB: Telecom Order CRTC 2018-99, "Wholesale mobile wireless roaming service tariffs – Final rates", Available at: https://crtc.gc.ca/eng/archive/2018/2018-99.htm.

Note: Cost per MB includes CRTC-approved 40% markup.

As the figure above shows, the carriers' proposed "lower-cost data-only" plans range in price from $25 to $30 per month, and include data volumes of between 400 and 600 MB. Applying the CRTC's figures for the cost of data transmission to these plans shows that the proposed retail prices of these plans are not only higher than the cost of delivering the service, but are drastically so. The carriers' delivery cost ranges from a total of $5.59 for Rogers' $25 400MB plan at the low end to a total of $8.44 for Telus' $30 600MB plan. For the plans presented above, the total markup—which represents a compound figure, since the principal sum upon which it is based already includes a 40% markup—ranges from a low of 255.3% for Telus' plan, to a high of 351.8% for Bell's $30 500MB plan. These ratios are astonishingly

[96] Telecom Order CRTC 2018-99, "Wholesale mobile wireless roaming service tariffs—Final rates", paras. 186& 189, emphasis added. Available at: https://crtc.gc.ca/eng/archive/2018/2018-99.htm
[97] Ibid., para. 193.

high, and stand as a sobering counterpoint to claims that Canada's wireless prices are justified because they purportedly reflect the cost of network building.

Again, we note that, while the above figures demonstrate that the proposed retail price of the carriers' plans is much higher than their cost to provide the delivery of the included data, the common costs associated with wholesale versus retail service provision may be different. However, the magnitude of the margin displayed above is highly suggestive of prices that are much higher than what could be considered "just and reasonable" were they regulated at retail, and furthermore, that the retail rates being proposed are much greater than the prospective incremental costs associated with sustainably building and maintaining mobile network infrastructure.[98]

For comparative purposes, we have also developed the following figure (28). The data are drawn from the legislated roaming rates that were put in place in 2014 under the previous government, which were in turn based on all carriers' average per MB retail revenue for the year 2013.[99] We note that, since they are based on average per MB retail revenue, the estimates below are not necessarily representative of the actual prices paid for Canadian mobile wireless service plans in 2013. The price of data varies from plan to plan and from provider to provider. That being said, if the carriers had offered their proposed "lower-cost data-only" plans in 2013 at industry-average per MB rates, then the following chart provides, in our view, a reasonable approximation of what their retail prices would have been—or, to be more precise, what revenue the proposed plans would have generated.

Figure 28: "Lower-cost data-only" plans based on 2013 average per MB retail revenue

Carrier	Plan Revenue	MB included	Average retail revenue/MB	Price differential, proposed vs estimate
Bell Mobility	$18.50	500	$0.037	38.3%
RCCI (Rogers)	$14.80	400	$0.037	40.8%
TCI (Telus)	$18.50	500	$0.037	38.5%
TCI (Telus)	$22.20	600	$0.037	26%

Source(s): Carriers' proposals, TNC CRTC 2018-98; Average retail revenue/MB: TNC CRTC 2015-186, Available at: https://crtc.gc.ca/eng/archive/2015/2015-186.htm

As figure 28 shows, the price of the plans that the carriers have proposed in this proceeding is higher than the estimated 2013 prices for all carriers, by a substantial margin. This suggests that, in essence, if

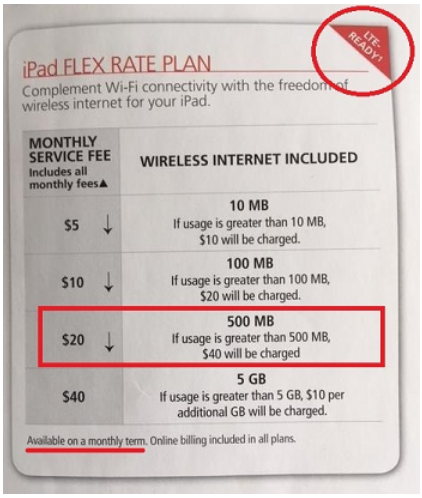
[98] Finally, we note that the wholesale roaming rates used to estimate the carriers' costs for this plan, and for our other estimates above, are based on the prospective incremental cost model (i.e. Phase II). In simple terms, this method of imputing the cost of a service is based on formulating an estimation and hypothetical calculation of what it would cost to establish a network for the purpose of providing the service in question. In the case of the national wireless carriers, the capital costs of their respective mobile wireless networks have already been incurred over the course of the past three decades. This means that the above estimate, based as it is on the Commission's approved forward-looking costs, is inherently conservative. The national carriers do not need to build new networks to provide service. The marginal cost of providing the service to network operators whose infrastructure is already in the ground and operational across the network is undoubtedly much lower than what is represented by our proposal.

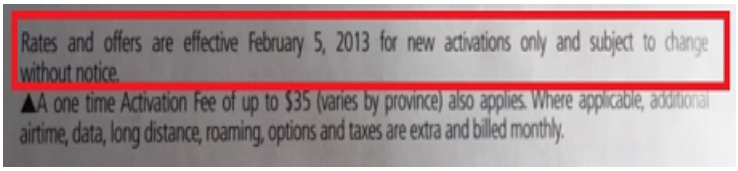
[99] These rates were calculated using a complex methodology. For more detail, see:
Telecom Decision CRTC 2015-540, "Legislated wholesale domestic roaming caps under the *Telecommunications Act*". Available at: https://crtc.gc.ca/eng/archive/2015/2015-540.pdf For the legislated rates, see associated notice of consultation, available at: https://crtc.gc.ca/eng/archive/2015/2015-186.htm

the Commission were to approve the carriers' proposals as they currently stand, it would be effecting a price increase of between 26%-40.8% for these plans. Put another way, the plans being proposed at present are priced in such a way as to generate substantially higher revenues than would similarly configured plans set at 2013 rates. This presents a significant concern and should give the Commission pause as it considers how to address the carriers' "lower-cost" proposals.

Furthermore, while the figures provided above in figure 28 are an estimate, they correlate closely with data-only "flex" plans that were available in 2013, confirming their appropriateness as a comparator for available 2013 plans. The following images (figure 29) are excerpted from a 2013 Rogers marketing leaflet:

Figure 29: Rogers' iPad flex rate plan, 2013



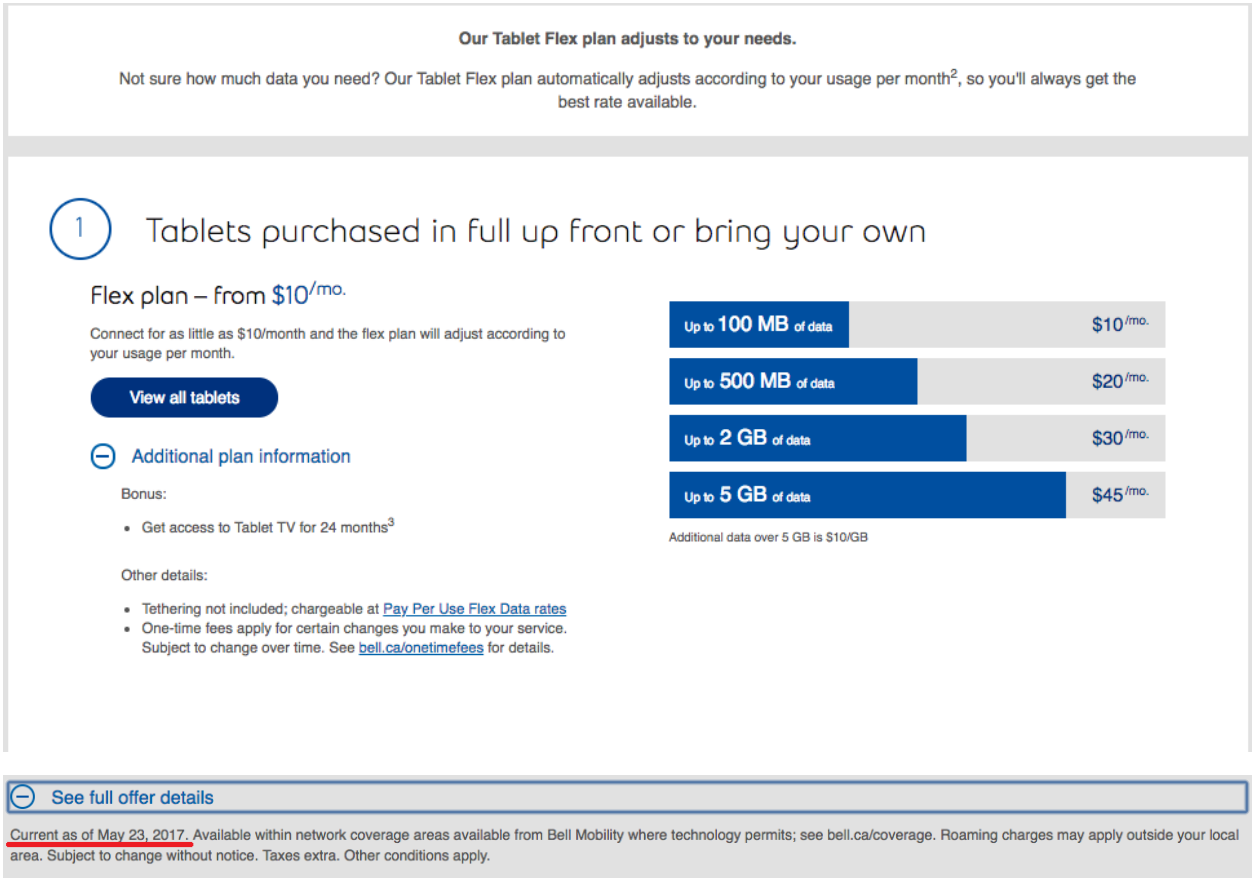


Source: Authors' archives.

As is clear from the images in figure 29 above, in 2013 Rogers in fact did offer a 500MB stand-alone data-only plan for $20, a price which closely resembles our 2013 estimate based on average per-MB retail revenue of $18.50 for a 500MB plan. We also note that, in 2013, both Bell and Telus offered flex plans that were similar, if not identical, to the Rogers plan shown above in terms of price and corresponding data volume. This, in our view, confirms that the estimates provided in figure 28 are an appropriate representation of the market price of data-only plans available in 2013, and thus serve an important illustrative purpose in the context of this proceeding. Furthermore, these estimates support the conclusions that that the carriers' current proposed plans are not sufficient to meet the expectations associated with what "lower-cost data-only" plans should look like in today's market.

In fact, the national carriers all currently or recently have offered mobile wireless data-only "flex" plans *at rates lower than those proposed to the Commission in this proceeding.* Bell Mobility, for instance, offers a "Flex plan" for tablets that has a base rate of $10 per month and includes a 100 MB data allowance. After a subscriber reaches that limit, the price increases with usage. If a subscriber to the flex plan uses 500MB, the rate becomes $20, or $10 lower than Bell's proposed plan for the same amount of proposed data. If a subscriber uses 2GB of data, the price becomes $30, equal to the rate of Bell's proposed plan but allowing four times as much usage. The price increases one additional time, to $45 for 5 GB of data, after which a $10/GB rate is charged. Regardless of usage, the flex plan also gives users access to Bell's "Tablet TV" application at no additional cost, although Bell notes that "standard data rates apply to any viewing over the cellular network." [100] See figure 30 below.

Figure 30: Bell Tablet Flex Plan



Source: Bell website (2018). "Tablet data plans". Accessed May 22, 2018. Available at: https://www.bell.ca/Mobility/Cell_phone_plans/Turbo-Stick-and-Turbo-Hub-data-plans

Telus used to offer a similar "flex plan" for tablets, but has removed the offer from the marketplace. It does, however, continue to offer flex plans for mobile internet devices such as dongles, portable "hot

[100] Bell Mobility (2018). "Tablet data plans". Accessed May 20, 2018. Available at: https://www.bell.ca/Mobility/Cell_phone_plans/Tablet_PC_data_plans

spots" or "rocket sticks"[101] at the same effective rate as its proposed plans (i.e. $30 for 500MB),[102] and it also currently offers a $30 500MB data-only plan through its Koodo sub-brand that appears to be available to smartphone users.[103] If the Commission's intention is that the carriers' "lower-cost data-only" plans should offer data at rates lower than those currently available, then clearly neither Bell nor Telus' proposals qualify, although Telus' 600 MB plan could be seen as a modest, if wholly inadequate, step in the right direction.

Rogers also used to offer a flex plan for tablets similar to those offered by Bell and Telus, as noted above. As recently as April 25, 2018, Rogers' website was advertising the stand-alone availability of its "Light" data-only plan.[104] Similar to the Bell flex plan, Rogers' latest data-only flex plan started at $10 for the first 100MB and charged $20 per 2GB for further usage. However, shortly after submitting its "lower-cost data-only" plans to the Commission, Rogers changed the terms of its in-market data-only plan, making the offer available to existing "eligible Rogers postpaid mobile customers only".[105] By tying its service to the purchase of a smartphone plan, Rogers appears to have effectively taken away its most affordable mobile broadband plan with one hand, while offering the Commission an inferior plan with the other.

Based on the above assessment, it is our opinion that the carriers' proposed plans are not likely to meet the affordability needs of people earning a low income in Canada. We are also of the view that the plans proposed by the carriers, and specifically their pricing, would likely fail the "just and reasonable" test, if the Commission were to engage in a comprehensive analysis of the relevant facts and circumstances related to forbearance and rate regulation. In light of the evidence presented above, we question the appropriateness of unconditionally maintaining a policy of retail forbearance. In our view, the persistent gap in adoption amongst lower-income people in Canada, coupled with the highly problematic nature of the carriers' proposals, calls out for corrective action.

Taking such action would contribute to furthering the legislated telecommunications policy objectives, particularly s. 7(b) of the *Telecommunications Act*, which refers to the goal of rendering "reliable and affordable telecommunications services of high quality accessible to Canadians in both urban and rural areas in all regions of Canada", and s. 7(h), which seeks to ensure that telecommunications in Canada "respond to the economic and social requirements of users of telecommunications services".[106] We note that competition in Canadian mobile wireless markets to date has clearly been insufficient to meet the requirements of lower-income people, and that consideration of this state of affairs is crucial to the legislative test for determining whether forbearance is appropriate or necessary.[107]

Given the information provided above, we believe that the Commission should reject the carriers' proposals as they stand at present. Endorsing these proposals would be tantamount to concluding that

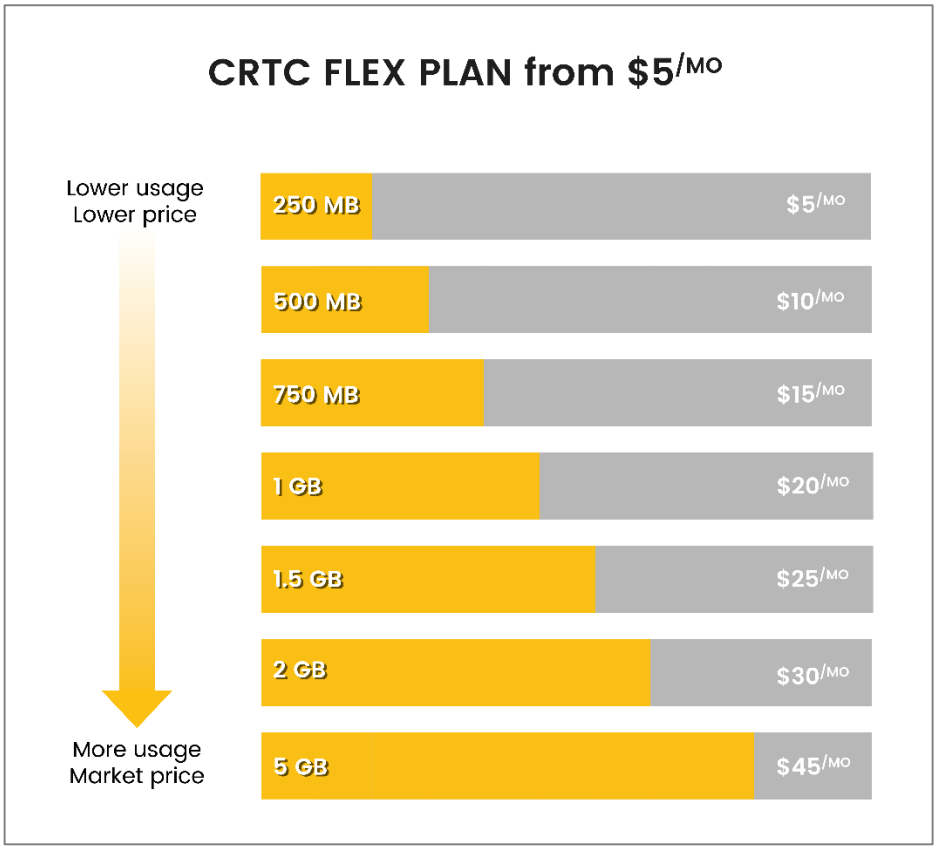
[101] Dongles, hot spots, and rocket sticks are portable devices offered by mobile service providers that enable mobile data connectivity much in the same way as a standard router would, but in portable format.
[102] Telus (2018). "Mobile internet". Accessed May 20, 2018. Available at: https://www.telus.com/en/bc/mobility/mobile-internet/?linktype=nav
[103] Koodo (2018). "Select a plan type": No tab. Accessed May 20, 2018. Available at: https://www.koodomobile.com/rate-plans?INTCMP=KMNew_NavMenu_Shop_Plans
[104] See: https://twitter.com/BenKlass/status/989002538841092097
[105] Rogers (2018). "Mobile Internet". Accessed May 20, 2018. Available at: https://www.rogers.com/consumer/wireless/mobile-internet?ipn=1
[106] *Telecommunications Act* (S.C. 1993, c. 38).
[107] See: *Telecommunications Act* (S.C. 1993, c.38). s. 34.

'poor internet for poor people' is good enough. Respectfully, we submit that there are alternative options better suited to meeting the needs of all parties, as we discuss below.

Recommendations—price and data volume

With the above in mind, and in consideration not just of the cost figures and estimates presented above, but of the international pricing comparisons presented earlier in this report as well, we present the following proposal for the Commission's consideration. In fact, our proposal was inspired by our survey of the available in-market mobile broadband plans presented above. We believe our proposal represents an elegant solution which addresses the affordability needs of everyone as well as the carriers' legitimate interest in earning a fair return:

Figure 31: "CRTC flex plan"



Source(s): Inspired by existing in-market carrier mobile broadband data-only plans.

Essentially, we propose that the Commission should adopt the carriers' "flex plan" approach to providing "lower-cost data-only" plans. There are numerous advantages to this approach, and, as far as we have been able to ascertain, no discernable downsides.

First, subscribers to this plan would pay an initial fee of $5—the same entry-level price point at which Rogers, Bell, and Telus offered their flex plans in 2013--which for the CRTC flex plan would enable 250 MB of data usage. Just like with the existing flex plans, increased use of the network would trigger correlative increases in the rate. We propose that, after reaching 250MB, the fee would increase by $5

per increment of 250 MB until reaching $20, which corresponds to 1GB of usage. Twenty dollars per month is equivalent to 1.2% of the average income among lowest-income households for 2016, roughly the same proportion of income that Bell endorses as affordable in its proposal.[108] 1GB also aligns more closely with how people actually use their mobile services than do the carriers' 400MB-600MB initial proposals—as figure 26 showed above, users in Canada generate on average 1.49 GB of traffic per month.

After reaching 1 GB, the $5 increments would continue, but the rate at which the data allowance increases would go up, incorporating a reasonable volume discount. $25 would provide a 1.5 GB data allowance, reflecting the average amount of data that people in Canada use in a month. At $30 for 2 GB, the CRTC flex plan will have converged with existing market pricing. Further data usage would trigger the final tier, which is set at $45 for 5 GB, the same as Bell's existing flex plan.

The feasibility of these plans for carriers and their appeal to people who could not otherwise afford lower amounts of mobile network access is supported by the Ericsson report's finding that, "[p]lans with low-to-moderate allowances (lower than 2GB per month) represent around 35 percent of users and 12 percent of traffic in the networks. From a capacity point of view," the report notes, "these customers could be viewed as easy to serve."[109]

We believe that our CRTC flex plan proposal represents a conservative compromise. The conservative nature of this proposal is underscored by the generous margin (over and above the built-in margin of 40%) that results from each tier's combination of price and data allowance. Even at lower levels of data usage, the plan is revenue-positive for carriers in terms of the associated prospective incremental cost of network building, rendering the plans sustainable from the long-term perspective of maintaining appropriate investment incentives. For lower-income people, the plan provides flexibility with regard to usage while offering service at rates that are more affordable than those already found at the market. Since the CRTC flex plan's pricing converges with in-market flex plan pricing beyond the threshold of average use (i.e. at the $30/2GB price point), concerns about existing heavy users 'jumping ship' (i.e. the opportunity cost to carriers of offering such a plan) are mitigated.

Further underscoring the conservative nature of the proposed plan, the rate of $20 per GB is lower than the Canadian price point in most of the international comparisons found above, but it is higher than the OECD average price for 1GB data-only broadband plans (figure 21), substantially higher than the Rewheel "fully allocated GB price" for Canada, and still much greater than the OECD and EU28 averages also shown by the Rewheel data (figures 24 & 25). As the Ericsson report observed, "…the larger the mobile plan consumers have, the less prone they are to switch to Wi-Fi. For small plans (below 100MB), only around 5 percent of traffic passes through mobile networks. For unlimited plans, this figure can be as high as 35 percent."[110] In other words, price-sensitive customers make substantially greater use of Wi-Fi networks, and lesser use of mobile networks, than heavier users, for whom affordability is less of an issue. One particularly significant advantage of the CRTC flex plan, therefore, is that it is designed to reward users who conscientiously prioritize Wi-Fi connectivity over cellular data by offering affordable

[108] Bell (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 9.
[109] Ericsson Mobility Report, November 2017. "Shifting mobile data consumption and data plans", Available at: https://www.ericsson.com/en/mobility-report/reports/november-2017/shifting-mobile-data-consumption-and-data-plans
[110] Ibid.

rates for low mobile data usage, while at the same time ensuring that people who use the mobile network more than average pay market rates to do so.

Our proposal has the double benefit of satisfying affordability requirements for low users while at the same time meeting the industry's expectations with respect to receiving fair market returns. The proposed plan would directly address the Commission's concern about the current gap in lower-cost data-plans, namely that "[a]t the lower end of the range, wireless service plans appear to be priced in a way that prioritize[s] voice minutes (and, to a lesser extent, text messaging) over data, such that the ability of Canadians to leverage lesser amounts of wireless data (aside from Wi-Fi connectivity) is limited."[111] Because the proposed plan offers smaller amounts of data usage at prices that are more affordable than those currently on offer, it helps to loosen constraints on people seeking to make lesser use of mobile networks. But because the plan's price is equivalent to market price once users go beyond Canadian average monthly data usage, the carriers' opportunity costs associated with introducing such plans are minimized, since heavier data users will wind up paying the market price. This pricing model has the added benefit of providing predictability, and promotes fairness by ensuring that people pay for what they use.

To the extent that the proposal we have put forward establishes rates and corresponding data allowances, we believe that the Commission should treat these as price ceilings and data floors, respectively. Treating the proposed rates as maximum and corresponding data allowances as minimum would be particularly important in light of the availability of better priced service plans in certain Canadian markets.

We are aware that some service providers are offering data-only plans in competitive Canadian markets that feature substantially more data at better prices than either the carrier's initial proposals or even our proposed CRTC flex plan. To be specific, Sasktel presently offers stand-alone data-only plans beginning at $15 per month for 1GB of data, with 5GB available for $20, 10GB for $30, or 20GB for $40.[112] While our proposed CRTC flex plan has been tailored to meet the affordability needs of lower-income people seeking to make smaller use of the network, it has been designed with reference primarily the national carriers' performance, not to smaller competitors for whom such information is unavailable. To the extent that the Commission could fine tune the pricing and data allowance of the proposed lower-cost plans, we believe that there may be room for adjustments that benefit those who would adopt these plans.

With regard to the Commission's requirement that "lower-cost data-only" plans be made available on both a prepaid and postpaid basis, the CRTC flex plan would easily be adapted for prepaid: people could pre-purchase data at any of the data tiers shown in figure 31 above, with the option of "topping-up" should their initial estimates prove unrealistic. Additionally, for both prepaid and postpaid service plans, the carriers could be required to deliver SMS notifications prior to each data tier being reached. This would enhance the transparency of the flex plan's pricing, as well as ensure predictability for subscribers. Most carriers already offer notifications to their customers who approach monthly data limits, as well as the option to purchase additional data by text message in cases where more than the

[111] TD CRTC 2018-97, "Reconsideration of Telecom Decision 2017-56 regarding final terms and conditions for wholesale mobile wireless roaming service, para. 100, emphasis added. Available at: https://crtc.gc.ca/eng/archive/2018/2018-97.htm
[112] Sasktel (2018). "Sharemore plans", accessed June 11, 2018. Available at: http://www.sasktel.com/store/product-detail-compare/Personal/Wireless/Rate-plans/shareMORE-plans/_/N-27ai

monthly allowance is needed. This suggests that adjusting such notifications for the proposed plans contemplated in this report would likely not involve significant new costs for the carriers.

Finally, we expect that some carriers might object to the comparison we draw between "tablet" and "smartphone" plans. Such objections are without merit. There is no material difference regarding the network costs incurred by a carrier based on what kind of device a customer installs a SIM card into. Both the function performed by the carrier as well as its costs are precisely the same, regardless of whether a customer uses a SIM card to bring connectivity to their smartphone or to their tablet. In fact, price conscious people have been using tablet plans as a go-to option for data-only mobile smartphone connectivity for years, with no apparent deleterious effect on the carriers' operations.[113]

In any case, we are of the view that the broad public benefit of enabling mobile access for people who would not otherwise be able to afford it clearly outweighs the carriers' prerogative to price discriminate on the basis of a person's choice of mobile device.[114] To the extent that the carriers' arbitrary pricing decisions would prevent low income people from being able to afford mobile services, such practices would likely subject lower-income people to an unreasonable disadvantage, and therefore be in contravention of s. 27(2) of the *Telecommunications Act*.[115]

In what follows, we present several concerns regarding the terms of the proposed plans, before offering concluding thoughts and observations.

Recommendations--terms of service and other considerations

Beyond the primary considerations of price and data allowance, there are several aspects of the proposed service plans that deserve attention in order to ensure that these plans meet the needs of their users.

First, with respect to the issue of overage fees, the carriers have proposed that their plans would be available on the same terms as are offered for other plans from their sub-brands, such as Virgin Mobile, Fido, and Koodo or Public Mobile. While Virgin Mobile does not publish the overage rates that apply to its service plans, the overage fee for both Koodo and Fido is $7 per 100MB. Compared to Telus' and Rogers' delivery cost per 100MB of $1.41 and $1.40 per 100MB, respectively, these overage fees appear to be excessive, and as such, to entertain allowing such fees to apply to plans intended to address low-income people could result in substantial harm. The CRTC's 2017 Communications Monitoring Report

[113] Misener, D. (2014). "How I ditched my voice plan and went data-only", Available at: http://misener.org/ditched-voice-plan-went-data/

[114] In fact, Parliament appears to have intended that carriers, under certain circumstances, be permitted to discriminate to the extent that it would benefit certain classes of subscriber. To be specific, s. 27(6)(b) of the *Act* expressly allows that "[n]otwithstanding subsections (1) and (2), a Canadian carrier may provide telecommunications services at no charge or at a reduced rate […] with the approval of the Commission, to any charitable organization or disadvantaged person or other person." We submit that, to permit the maintenance of device-based service pricing discrimination to the exclusion of making service more affordable for lower-income people in Canada would run counter to the circumstances contemplated by this section of the *Act.*

[115] Subsection 27(2) of the *Telecommunications Act* read: "No Canadian carrier shall, in relation to the provision of a telecommunications service or the charging of a rate for it, unjustly discriminate or give an undue or unreasonable preference toward any person, including itself, or subject any person to an undue or unreasonable disadvantage." (S.C. 1993, c. 38). For an in-depth discussion of the historical development of this provision, see: Klass, B., Winseck, D., Nanni, M. & McKelvey, F. (2016). "There ain't no such thing as a free lunch: Historical and international perspectives on why common carriage should be the cornerstone of communications policy in the Internet age." Submitted before the Canadian Radio-television and Telecommunications Commission Telecom Notice of Consultation CRTC 2016-192, Examination of differential pricing practices related to Internet data plans. Available at: http://www.cmcrp.org/wp-content/uploads/2016/04/CMCRP_Intervention_to_TNC_CRTC_2016-192_Jun2016.pdf

indicates that, as of Fall 2016, "[a] sizeable number of Canadians (21%) continue to experience bill shock" (CRTC, 2017, p. 72), despite the Wireless Code's measures intended to address this problem. The possibility of incurring large overage fees is of particular concern for lower-income people, who may be put in financial jeopardy should they find themselves in such a situation.

We note that the $10 per GB overage fee that applies to Bell's flex plan is actually less than the tariff rate for mobile data. However, the Commission may wish to consider imposing conditions limiting or prohibiting the use of overage fees on the lower-cost data-only plans in consideration of the difficult circumstances facing people of low income. It could do this, for instance, by requiring the carriers to implement "soft" data limits instead of overage fees, i.e. by requiring that the carriers slow down data rates after the limit is reached rather than adding extra charges. If the Commission were to pursue this route, it could make sure that the speed to which service is slowed after reaching a predefined limit would not be too low to effectively render the service useless. At present, for example, certain plans from chatr slow speeds to 64Kbps for users who exceed limits. In our opinion, dial up speeds belong in the 20th century. At minimum, the Commission could ensure that speed is not throttled below that which would be required to make continued use of the network in case of an emergency.

Second, measures could be taken to ensure that carriers do not use these plans as a vehicle to upsell their customers to more expensive plans. While we believe that adoption of our CRTC flex plan proposal would largely addresses this issue, as we noted earlier, Ericsson has identified this as a concern: "[o]f all the traffic generated by the users of limited plans, around 30 percent is consumed above data bucket limits. This allows operators to continuously upsell data through top-ups."[116] Rogers has already indicated that subscribers to its plan would receive "important text service messages from Rogers at no cost" (i.e. marketing offers).[117] The best way to address this possibility is to ensure that the data volume provided with the plans is sufficiently large to meet the needs of the people who will use the service.

Third, the Commission could ensure that these plans remain available and at a predictable price until such time as an appropriate review is undertaken. Rogers has already indicated that "the rates and terms of all plans are subject to change" and that "the offer may adjust for inflation and other factors".[118] To the extent that changes must be made to these plans, the Commission could ensure that they are to the benefit of people subscribing to the plans. This could be achieved by imposing a condition similar to the one found in section D.1.iii. of the Wireless Code, which only allows key contract terms or conditions to be changed by the service provider with the express consent of the account holder or authorized user, and only if it clearly benefits the customer by either reducing the rate for a single service or by increasing the usage allowance for a single service. With respect to the proposed plans, we recommend ensuring that the included data allowances are considered "key terms" for the purpose of any potential Wireless Code analysis.

Fourth, the requirement that the "lower-cost data-only" plans be made widely available could also extend to the nature of the service offered. In recent years, some carriers have begun to offer plans wherein normal usage is restricted to geographic "zones". While we acknowledge that this type of offer represents a niche option that may be attractive to some people, these plans also create uncertainty

[116] Ericsson Mobility Report, November 2017. "Shifting mobile data consumption and data plans", Available at: https://www.ericsson.com/en/mobility-report/reports/november-2017/shifting-mobile-data-consumption-and-data-plans
[117] Rogers (2018). Intervention to Telecom Notice of Consultation 2018-98, "Call for comments: Lower-cost data-only plans for mobile wireless services", para. 8.
[118] Ibid, para. 13.

with respect to the possibility of additional fees that may be occurred when access to service is required while roaming outside the zone. To the extent that these plans could result in unexpected fees and "bill shock", the Commission could seek to ensure that the plans made available as a result of this proceeding are national in coverage, or, if geographic price discrimination is permitted, that the plans do not involve additional fees based on the area in which the services are accessed.

Fifth, with respect to "speed", we draw attention to the Commission's express expectation that "lower-cost data-only plans should be available on the latest mobile wireless network technology".[119] We share this expectation, noting in particular that LTE access is a requirement of the newly-instituted wireless public alerting system.[120] While the carriers' proposals make much of the high speed of their LTE networks, as we have discussed above, in our opinion, data volume allowances are a more relevant consideration, especially so with regard to lower-cost plans. Indeed, some of the carriers' sub-brands (e.g. chatr and Public Mobile) have brought plans to market that are advertised as providing "3G" speeds. These plans offer a trade-off between available speed, on the one hand, and data volume and price, on the other. In other words, they tend to be priced lower, and include more data, than plans that offer access to full 4G LTE speeds. This is a form of price differentiation that mirrors the practice that generally prevails in the wireline market: graduated price points are offered on the basis of increasing speed, with lower-priced plans offering slower speeds. The authors of the affordability report draw a connection between the prevalence of price differentiation in broadband markets and positive impacts on adoption and affordability:

> Recent research suggests that, in addition to the positive impact of income, education and speeds on demand, having a larger variety of service tariffs has had a significant and positive impact on broadband penetration. Nevertheless, this result is based on a global sample that includes both developing and high-income countries. In more mature markets where demand becomes inelastic, the incentives of operators to engage in price discrimination are likely to diminish, particularly with respect to low-cost offerings.
>
> While further research will be required to better understand the determinants and consequences of price discrimination in maturing broadband markets, international data suggests that in mature digital economies such as those of Canada, the United States, the Netherlands, France, Norway and Iceland, low-cost options in the market tend to be relatively limited. Although the higher incomes in these countries make communications and other basic services more affordable in general terms, the lack of low-cost options increases concerns about the ability of low-income groups to access services. As described later in this report, the evolution of broadband prices in Canada over the past few years provides a clear example of this wider trend.[121]

We observe that, while some service providers have begun to engage in the types of practices above, the extent to which it has taken place in the mobile market appears to be limited. Increasing the range

[119] Telecom Notice of Consultation CRTC 2018-98, "Lower-cost data-only plans for mobile wireless services", para. 12. Available at: https://crtc.gc.ca/eng/archive/2018/2018-98.htm
[120] CRTC (2018). "Emergency alert messages and the national public alerting system", Available at: https://crtc.gc.ca/eng/television/services/alert.htm
[121] Rajabiun, R., Ellis, D., & Middleton, C. (2016). "Literature review: Affordability of Communications services", Report commissioned by the Canadian Radio-television and Telecommunications Commission, pp. 19-20, emphasis added. Available at: https://www.ryerson.ca/~cmiddlet/ourresearch/lit-review-for-crtc-2016-affordability-rajabiun-ellis-middleton.pdf

of choice of service available on the market could have the benefit of bringing services within reach of people who could not otherwise afford them; however, we stress the importance of ensuring that such measures are tailored to meet the actual needs of people who rely on these services as a base line means of communication. At a minimum, there must be transparency: people have a right to know what they are paying for.

With the above in mind, we wish to draw the Commission's attention to an important detail: the use of "3G" to refer to existing market plans in the cases described above is a marketing term, in distinction from a technical term. To be clear, while providers advertise "3G" speeds, these services are actually offered over the LTE network at throttled speeds.[122] In our view, these plans could meet the Commission's expectations with regard to the outcome of this proceeding, although we are wary of an outcome that would see higher-quality services completely replaced or precluded by a lower-quality 'good enough' offering. We do not believe it would be appropriate to endorse a policy that would result in 'poor internet for poor people.'

Additionally, while the proposals from Bell and Rogers indicate that their "lower-cost data-only" plans will be offered at 4G speeds, the actual speed of the plan is not always readily discernable to the public from available marketing material. After surveying the chatr website, we were only able to ascertain the speeds at which services are offered or information about the networks that are used after great difficulty. On May 21, we placed a call to Rogers' chatr customer service seeking clarification of these questions. The customer service representative confirmed that all plans make use of the LTE network, and that 3G plans are throttled to 3Mbps. We were concerned, however, to learn that the plans chatr offers at 4G speeds are throttled to 4Mbps, substantially below the theoretical maximums available on LTE networks, and, indeed, well below the speeds that even 3G HSPA networks are capable of providing.

In light of this information, the Commission might consider reiterating its requirement, established in the 2009 Internet Traffic Management Practices framework, that carriers are required, "as a condition of providing retail Internet services, to disclose to their retail customers, clearly and prominently on their websites, information related to their technical ITMPs".[123] Indeed, based on research conducted over the course of preparing this report, there are at present numerous readily identifiable instances in which carriers do not appear to be acting in compliance with this established policy. Additionally, the Commission could request that the carriers provide additional clarification and transparency regarding the actual speeds at which the proposed plans will be offered, as well as other relevant information, before coming to its determinations in this proceeding.

Compliance failures notwithstanding, we are of the view that an increased availability of plans that employ price differentiation on the basis of speed in the mobile broadband could improve the range of options available to lower-income people in Canada, if carefully implemented, with initial terms and

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[122] See Public Mobile website, "Offer details": "Plans with 4G LTE data can access maximum LTE download speeds (manufacturer rated at up to 750 Mbps; expected average speeds 12-200 Mbps). Plans with 3G data may reach download speeds of up to 3 Mbps, with the coverage and reliability of the LTE network." Accessed May 21, 2018. Available at: https://www.publicmobile.ca/en/bc/plans/40for2GB-3Gspeed

[123] Telecom Regulatory Policy CRTC 2009-657, "Review of the Internet traffic management practices of Internet service providers", para 60. Available at: https://crtc.gc.ca/eng/archive/2009/2009-657.htm
See also: Telecom Decision CRTC 2010-445, "Modifications to the forbearance framework for mobile wireless data services", Available at: https://crtc.gc.ca/eng/archive/2010/2010-445.htm
We are aware that information provided by carrier CSRs may be inaccurate. For the purpose of the above observations about chatr's speeds, however, we are operating under the assumption that we were not misinformed or misled by the representative. For more information about carrier sales practices, see CBC's "Go Public" investigative journalism by Erica Johnson, available at: http://www.cbc.ca/news/canada/erica-johnson-1.3454654

ongoing compliance guided by the Commission.[124] This view is confirmed by the authors of the affordability report, as is the need for new policy mechanisms designed to encourage dominant operators to expand their offerings:

> In mature markets where demand for an increasingly essential service becomes price-inelastic, the extent to which operators offer low-cost options of sufficient quality can have an important effect on the affordability of access with respect to low-income adopters (i.e. the growing majority) and non-adopters (i.e. the shrinking minority) alike. This outcome leads to diminishing returns on gains in market share by lowering prices as a strategy, inducing dominant operators to increase prices and reduce price discrimination in the low-cost end of the market. In this context, wholesale access policies that encourage price and quality differentiation might be the most effective method for stimulating market forces in a manner that meets the needs of different classes of users, including those with low incomes. The literature suggests that although technological and business process innovations are likely to be the primary drivers of access to lower cost and higher quality broadband services, the design of both the public policies and private-sector business strategies outlined above will likely shape affordability as an economic constraint on consumers in the short to medium term.[125]

Sixth, we acknowledge that the present proceeding explicitly contemplates the provision of "data-only" plans. However, we wish to draw attention to several important considerations that, in our view, suggest that voice services have an important role to play in addressing the telecommunications needs of lower-income people. First, we note that this proceeding was initiated pursuant to the Commission's confirmation, delivered in accordance with the Order of the Governor in Council, of its decision not to allow Wi-Fi-based MVNOs access to national carriers' mobile networks at regulated rates. The series of processes that led to the present consultation, subsequent to the establishment of the wireless roaming framework in 2015, were largely spurred by a low-cost Sugar Mobile/Ice Wireless offering. To the extent that this current proceeding can be seen as an effort to emulate the type of offering previously available from Sugar Mobile, or to serve the same market segment, we note that Sugar Mobile's $19 offering was not a data-only plan; it included unlimited Canada and US talk that was separate from and not dependent upon the mobile component of the service, which included 400 MB of data.[126]

Due to the fact that Sugar Mobile was able to offer this service while paying high interim wholesale roaming rates based on the national carriers' costs including markup, it stands to reason that the national carriers could afford to do the same. In fact, the national carriers, who benefit from economies of scale stemming from subscribership that is orders of magnitude larger than that of Sugar, and who

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[124] Such guidance could take the form of an *ex post* complaints-based framework; the establishment of bright-line expectations, as was the case in the differential pricing framework, the use of administrative monetary penalties for non-compliance, the appointment of inspectors by the Commission, or some combination of the above, all of which are firmly within the Commission's legislative powers under the *Telecommunications Act*.

[125] Rajabiun, R., Ellis, D., & Middleton, C. (2016). "Literature review: Affordability of Communications services", Report commissioned by the Canadian Radio-television and Telecommunications Commission, p. 22, emphasis added. Available at: https://www.ryerson.ca/~cmiddlet/ourresearch/lit-review-for-crtc-2016-affordability-rajabiun-ellis-middleton.pdf

[126] Sugar Mobile, website. Accessed May 21, 2018. Available at: https://www.sugarmobile.ca/index.php#starter-kit We note that, not only did Sugar Mobile's plan offer talk & text as well as data, but, at $19 per month, was notably less expensive than the carriers' current proposals. This is in spite of the fact that Sugar's cost included the VoIP solution employed to enable voice and text, and, additionally, that Sugar was accessing mobile data on the national carrier(s)' networks at rates substantially greater than even the currently valid wholesale mobile wireless roaming rates that were used to calculate our estimate of the carriers' costs and for developing our $20, 1GB proposal. Before the Commission determined that Sugar Mobile's use of mobile roaming was not permitted by the tariffs, it was paying for data roaming at an interim rate (i.e. $0.0252 per MB per Rogers tariff notice 42) which was nearly double the rates approved in TO CRTC 2018-99.

have already made the investments required to establish national mobile network coverage, are even better positioned than Sugar to provide service that includes voice.

Furthermore, the decision to exclude voice service (which could be offered, at minimum, as an option at little or no additional cost) from the proposed plans could be seen to be inconsistent with the Commission's determinations regarding what constitutes a basic telecommunications service. In Telecom Regulatory Policy CRTC 2016-496, "Modern telecommunications services – The path forward for Canada's digital economy", the Commission established a universal service objective which seeks to ensure that "Canadians, in urban areas as well as in rural and remote areas, have access to voice services and broadband Internet access services, on both fixed and mobile wireless networks."[127] To be more specific, the establishment of this objective entailed the determination that mobile wireless voice services "are hereby basic telecommunications services within the meaning of subsection 46.5(1) of the Telecommunications Act".[128] While some people might seek out innovative online voice applications, others prefer traditional mobile telephony services, may require them for safety and/or security purposes, or possibly lack the digital literacy skills to make use of online services. This latter group should not be denied the option of adding voice calling to their connection.

To now mandate the offering of services that do not contemplate at minimum the option of providing voice services would appear to be a reversal of the Commission's recent determinations in the basic services proceeding. This, in our opinion, would be an unacceptable step backwards, especially in the context of efforts to improve access to telecommunications services for low-income people. We therefore believe that, at a minimum, the Commission could require that whatever plans it approves as a result of this proceeding come with the option of adding voice services at little or no additional cost to the subscriber.

Conclusion

Finally, while we support the Commission's initiative to require that the national carriers' offer "lower-cost data-only" plans to people across the country (subject to the suggestions above), it is our opinion that such an approach represents a behavioural remedy, which, by its very nature, is inferior to the type of solutions that are required to address problems that are in our view inherently structural. The type of problems facing the Canadian wireless market are, in our view, ones that stem from the highly concentrated composition of a market that is also characterized by extreme levels of vertical and diagonal integration, as well as the insufficiency or unavailability of the legal and regulatory tools and priorities that would be necessary to ensure that our wireless market can deliver on the promise of universal communication services.

We acknowledge that the scope of the present proceeding is limited, and furthermore that the complex technological, economic, social, cultural, and legal issues that must be confronted in order to address the persistent shortcomings in the communications sphere go well beyond the role of the CRTC itself. That being said, we wish to express specific concern that, whatever the outcome of this proceeding, it is all but assured that continued action and attention will be required before Canada's longstanding

[127] Telecom Regulatory Policy CRTC 2016-496, "Modern telecommunications services – The path forward for Canada's digital economy", introduction. Available at: https://crtc.gc.ca/eng/archive/2016/2016-496.htm
[128] ibid, para. 131.

problem with mobile adoption is solved. We therefore urge the Commission and interested parties to continue in their efforts to address these and related issues, but to remain open to the possibilities offered by new and innovative ways of thinking about how we might overcome these obstacles.[129]

Glossary of Key Terms and Acronyms

3G – Third Generation – the third generation standard for mobile wireless technology; enables mobile broadband connectivity. See also: HSPA

4G – Fourth Generation – the fourth generation standard for mobile wireless technology; enables faster speeds for end-users and more efficient use of existing spectrum resources for carriers. See also: LTE.

CA$ -- Canadian dollars.

CAC – Consumers' Association of Canada, Manitoba Branch.

CAGR – Compound annual growth rate.

CMCRP – Canadian Media Concentration Research Project – Directed by Dr. Dwayne Winseck, see: http://cmcrp.org.

IMCRP – International Media Concentration Research Project – Directed by Dr. Eli Noam. See: https://global.oup.com/academic/product/who-owns-the-worlds-media-9780199987238?cc=us&lang=en&

CRTC – Canadian Radio-television and Telecommunications Commission. Administrative regulatory agency charged with administering Canada's *Broadcasting* and *Telecommunications Acts.*

Ericsson – mobile network equipment manufacturer; research & information on mobile networks.

EU – European Union.

FCC – Federal Communications Commission – American administrative regulatory agency tasked with overseeing US communications industry.

FMCC – First Mile Connectivity Consortium. For more information, see: http://firstmile.ca

G7 – Group of Seven. Seven of the largest advanced economies in the world. Includes Canada, France, Germany, Italy, Japan, the United Kingdom, and United States of America.

GB – Gigabyte. Equal to 1000 megabytes. See also: MB.

[129] The above represents the sum total of our observations and recommendations with respect to the issues raised in this proceeding. We note that silence or omission with regard to any particular aspect of the proceeding or the issues raised therein is not to be construed as support for or opposition to same.

GIC – Governor in Council (of Canada). For more information, see: https://en.wikipedia.org/wiki/Governor_General_of_Canada

GNI – Gross national income.

GSM – Global system for mobile communications. For more information, see: https://en.wikipedia.org/wiki/GSM

HSPA – High speed packet access. Technical protocol enabling 3G mobile broadband connectivity. For more information, see: https://en.wikipedia.org/wiki/High_Speed_Packet_Access

ISED – Innovation, Science and Economic Development. Formerly Industry Canada, Canadian federal ministry responsible for telecommunications. See: https://www.canada.ca/en/innovation-science-economic-development.html

ICT – Information and communication technologies.

ISCC – Internet Society, Canada Chapter. For more information, see: https://internetsociety.ca

ITMP – Internet traffic management practice(s). For more information, see: https://crtc.gc.ca/eng/archive/2009/2009-657.htm

ITU – International Telecommunications Union. For more information, see: https://www.itu.int

LTE – Long term evolution. Technical protocol underpinning 4G mobile networks.

MB – Megabyte. A unit of digital information. For more information, see: https://en.wikipedia.org/wiki/Megabyte

Mbit/s – Megabits per second. A measure of digital network data transfer rate. See also: Mbps.

Mbps – Megabits per second. A measure of digital network data transfer rate. For more information, see: https://en.wikipedia.org/wiki/Data-rate_units

MEI – Montreal Economic Institute. For more information, see: https://www.iedm.org/e

MTS – Manitoba Telecom Services. Previously Manitoba's incumbent telecommunications service provider before being purchased by Bell Canada Enterprises in 2017.

MVNO – Mobile virtual network operator. A third party service provider which provides end-users with mobile service by purchasing wholesale inputs from mobile network operators. For more information, see: https://en.wikipedia.org/wiki/Mobile_virtual_network_operator

Nordicity – A consulting firm specializing in policy, strategy, and economic analysis in the media, creative, and information and communications technology sectors. For more information, see: http://nordicity.com/home/about

OECD – Organization for Economic Cooperation and Development. For more information, see: http://www.oecd.org

OIC – Order in council.

Opensignal – A London, UK based firm specializing in mobile network performance measurement. For more information, see: https://opensignal.com/about

Penetration – a measure of mobile adoption, expressed as connections per 100 inhabitants.

PILC – Legal Aid Manitoba's Public Interest Law Centre. For more information, see: https://www.legalaid.mb.ca/pilc/public-interest-law-centre/

PPP – Purchasing power parity. A method of comparing the cost of goods and services across jurisdictions with different currencies. For more information, see: https://en.wikipedia.org/wiki/Purchasing_power_parity

SIM – Subscriber identity module. A SIM card is installed into a mobile device in order to link it to a users' account and identifying information, such as phone number. For more information, see: https://en.wikipedia.org/wiki/Subscriber_identity_module

SMS – Short message service. More commonly known as a mobile text message. For more information, see: https://en.wikipedia.org/wiki/SMS

RAN – Radio access network. A key component in mobile networks. For more information, see: https://en.wikipedia.org/wiki/Radio_access_network

Rewheel – Finnish consultancy specializing in research and analysis related to mobile networks. For more information, see: http://rewheel.fi

RCCI – Rogers Communications Canada Inc.

TCI – Telus Communications Inc.

UK – United Kingdom.

USA – United States of America.

USD$ -- US dollars.

VAT – Value added tax. European Union equivalent of goods and services tax (GST).

Wi-Fi – Wireless Fidelity. Wireless network protocol that uses unlicensed radio spectrum for wireless networking applications. For more information, see: https://en.wikipedia.org/wiki/Wi-Fi

Curriculum Vitae

Benjamin Klass

Personal Information

Graduate Student (PhD), School of Journalism and Communication, Carleton University

Citizenship: Canadian

Webpage: http://benklass.wordpress.com

Work Experience

CONSULTANT, SELF EMPLOYED, OTTAWA, ON, SUMMER 2015-PRESENT.

Various clients, including public sector, not-for-profit, law firms, advocacy organizations. Provision of research and analysis on matters related to economics of telecommunications, broadcasting, communications regulation, law, and policy.

TEACHING ASSISTANT, CARLETON UNIVERSITY, OTTAWA, ON, FALL 2014-PRESENT

Various courses. Supervised by Dr. Dwayne Winseck, Dr. Kirsten Kozolanka, Cindy Kardash-Lalonde.

TERM EMPLOYEE, CANADA POST, WEST HAWK LAKE, MB, 2006-2014

Responsible for seasonal management of rural postal outlet 2006-2010. Duties include management of day-to-day operations including reception, sorting, and delivery of mail. Processing of cash transactions, face-to-face customer service interaction, and daily financial reporting. Monthly duties include financial account management and inventory management. Part-time/on call 2011-2014.

TEACHING ASSISTANT, UNIVERSITY OF MANITOBA, WINNIPEG, MB, FALL 2012, FALL 2013

POLS1000 - Democracy and Development. Supervised by Prof. Radhika Desai. Led 4 seminars per term, consisting of 12-15 students each. Met with students for extra assistance during office hours. Filled in for Professor's lecture on 2 occasions, also invigilated midterm exam. Graded ~50 papers per term, provided detailed feedback. (See evaluation forms - appended)

BUILDER, DOWN BY CREEK FINE CARPENTRY, (204)349-8484. WEST HAWK LAKE, MB — 2008-2012

Assisted in rural homebuilding, on projects of various scales. Roofing, decking, painting, general maintenance, dock building, timber-frame additions and new construction. Worked solo and under the supervision of journeyman carpenters Trevor Down, Jim Orr, Anna Hargreaves, and Dave Spence.

PREVIOUS EMPLOYMENT — 1997-2008

Details of previous employment available upon request.

Education

University of Manitoba, 2015 - Master of Arts in Political Studies. Supervisor: Dr. Radhika Desai. Thesis title: Mobile Wireless in Canada: Policy, problems, and progress.

University of Toronto, 2006 - Bachelor of Arts (Honours) in Philosophy, Economics, and Aboriginal Studies.

Awards

University of Carleton Doctoral Scholarship, School of Journalism and Communication, 2014

University of Manitoba Political Studies Special Student Award, 2011

University of Manitoba Political Studies Graduate Conference Travel Award - 2012

University of Manitoba Faculty of Graduate Studies Conference Travel Award - 2012

Presentations, Lectures, Workshops

Conference presentation, title: "Just and reasonable? Historical and contemporary perspectives on rate regulation in Canadian telecommunications", Canadian Communications Association Annual Meeting, University of Regina, Regina, Saskatchewan. May 2018.

Invited lecture and discussant, title: "Net neutrality, common carriage in Canadian telecommunications", for Communications and technology webinar, University of Alberta, Dr. Rob McMahon, January 17, 2018.

Invited guest lecture, title: "Networks and regulation", for "Digital media industries" COMMS4403-A, School of Journalism and Communication, Carleton University, Ottawa, Ontario, Dr. Liam Young. October 5, 2017.

Conference presentation, title: "Making waves in wireless: The turbulent development of Canadian wireless policy ca. 2007-2017", Canadian Communications Association Annual Meeting, Ryerson University, Toronto, Ontario. June 2017.

Conference presentation, title: "Why are less carriers competing? Canadian mobile wireless policy 2006-2017", for Canadian Spectrum Research Group, Spectrum Summit 2017. University of Calgary, Calgary, Alberta, May 11, 2017.

Invited guest discussant, topic: "Net Neutrality in Canada: 2008-2017," for "Seminar on the broadband Internet," COMN 4520, Department of Communication Studies, York University, Dr. David Ellis. March 7, 2017.

Invited guest lecture(s), title: "Why is my smartphone so expensive? Consumers, citizens, corporations, and the CRTC", for "Introduction to Communication and Media Studies",

COMMS1000, Department of Journalism and Communication, Carleton University, Dr. Sandra Robinson. January 12 & 13, 2017.

Keynote lecture, title: "What does BCE-MTS mean for Manitoba?", for Consumers Association of Canada, Manitoba Branch; Canadian Centre for Policy Alternatives, The Public Interest Law Centre, Menno Simons College, and the University of Winnipeg Department of Economics. November 29, 2016.

Oral presentation to CRTC, Telecom notice of consultation CRTC 2016-192, "Examination of differential pricing practices related to internet data plans", Gatineau, Quebec, October 31, 2016.

Conference presentation, title: "Common carriage in Canadian communications", Canadian Communications Association Annual Meeting, University of Ottawa, Ottawa, Ontario. May 30 2016.

Workshop presentation, title: "Gift horse or trojan horse? Regulators' responses to the zero rating of mobile applications in Canada and around the world", International exploratory workshop "Transnational histories of telecommunication @ITU", Geneva, December 17-19, 2015.

Conference presentation, title: "Zero-rating: gift horse, or Trojan horse?", for Geopolitical Economy Research Group inaugural conference, University of Manitoba, Winnipeg, Manitoba. Friday, September 25, 2015.

Panellist, "Quasi v. judicial - have expectations for fair process changed in the century", Forum for Research and Policy in Communications (FRPC), "Rebooting Canada's Communications Legislation" Conference, University of Ottawa, Ottawa, Ontario. May 22-23, 2015.

Invited Guest Lecture, title: "Foreign ownership in Canadian communications", for Introduction to Communication Studies", COMMS 1000, Department of Journalism and Communication, Carleton University, Ottawa, Ontario. For Dr. Benjamin Woo. January 26, 2015.

Oral presentation to CRTC, Telecom notice of consultation CRTC 2014-76, "Review of wholesale mobile wireless services", Gatineau, Quebec, September 29, 2014.

Lecture: "The Wireless Rip-Off: Oligopoly Control of Telecommunications in Canada," University of Manitoba Graduate Student Lecture Series, University of Manitoba, Winnipeg, Manitoba. January 31, 2014.

Invited guest discussant, topic: "Net Neutrality and ITMPs," for "The Electronic Information Network Marketplace", COMN 4520, Department of Communication Studies, York University, Dr. David Ellis. January 29, 2014.

Conference presentation: "The Technological Imperative in Canada and the Idle No More Movement," Communication Graduate Conference, Carleton University, Ottawa, Ontario. March 2013.

Conference presentation: "Putting the Common back into Common Carriage: Why Network Ownership Matters," 4th Annual ICT-S Conference, Uppsala University, Uppsala, Sweden, May 2012.

Publications

Klass, B. (Book chapter, forthcoming). "Why are less carriers competing? Mobile competition in Canada 2006-2017." In As yet untitled book resulting from Spectrum Summit conference, 2017.

Klass, B. (2016). "Once Manitoba Telecom Services sold, there's no hitting 'redial'", *Winnipeg Free Press*, Tuesday, November 29, 2016. Available at: http:// www.winnipegfreepress.com/opinion/analysis/once-manitoba-telecom-services-sold- theres-no-hitting-redial-403515116.html

Winseck, D. & Klass, B. (2016). "MTS deal would set a harmful precedent for wireless competition", *Globe & Mail*, Wednesday May 18, 2016. Available at: http:// www.theglobeandmail.com/report-on-business/rob-commentary/mts-deal-would-set-a- harmful-precedent-for-wireless-competition/article30060562/

Klass, B. (2013). "Sparkling Lakes and Spectrum Auctions," *Huffington Post*, September 3, 2013. Available at: http://www.huffingtonpost.ca/benjamin-klass/sparkling-lakes-and-spect_b_3857200.html

Klass, B. (2013). "I am Canadian: A Reply to Bell's Open Letter," *Huffington Post*, August 8, 2013. http://www.huffingtonpost.ca/benjamin-klass/bell-canada- verizon_b_3726444.html

Additional Research Experience

Research contributor, various roles, Canadian Media Concentration Research Project, supervised by Dr. Dwayne Winseck. 2012-present.

Volunteer Work

Research associate, First Mile Connectivity Consortium. 2015-present.

Member, policy committee. Internet Society, Canada Chapter. 2015-present.

Organizer, Openmedia "Connected Canada Conversation," Winnipeg public forum on digital issues, January 25, 2014.

Department Representative, University of Manitoba Graduate Students' Association, 2011-2012.

Memberships

Canadian Communication Association, 2014-present.

CUPE4600,2014-present

CUPE3909,2012-2017

CPAA (Canadian Postmasters and Postmasters' Assistants Association), 2006-2017

Reports and Submissions to Government

Winseck, D. & Klass, B. “Website Blocking, Clogging the Pipes, and Crippling Citizens’ Fundamental Communication Rights.” CMCRP Submission in response to the Fairplay Coalition’s application for website blocking. Submitted before the Canadian Radio- television and Telecommunications Commission, Application 8663-A182-201800467 to disable on-line access to piracy sites, March 29, 2018.

Klass, B., Winseck, D., McKelvey, F., & Nanni, M. “There ain’t no such thing as a free lunch: Historical and international perspectives on why common carriage should be a cornerstone of communications policy in the Internet age.” June 2016.

Klass, B. & Winseck, D. “Why Bell’s bid to buy MTS is bad news: Report submitted to the Competition Bureau assessing Bell Canada Enterprises’ proposed bid to acquire Manitoba Telecom Services.” May 2016.

Klass, B, & Ellis, D. Intervention(s) to TNC CRTC 2014-76, Review of wholesale mobile wireless services,” February 20, 2014.

Klass, B. “Part 1 Application requesting fair treatment of Internet services by Bell Mobility,” November 22, 2013.

Klass, B. Intervention to CRTC 2013-685, “Call for comments - Wholesale mobile wireless roaming in Canada - Unjust discrimination/undue preference,” January 29, 2014.

Klass, B. Intervention to “CNOC Part 1 application requesting relief to improve the quality of wholesale high-speed access services provided by cable carriers,” September 30, 2013.

Klass, B. Intervention to “Diversity Canada Foundation, Part 1 Application to Review and Vary Section J of Telecom Regulatory Policy CRTC 2013-271” (“The Wireless Code”), October 7, 2013.

Media Coverage

CBC: Lang and O’Leary Exchange; CBC: The National; CBC News Online; CBC On the Money; Various CBC radio programs; The Wire Report; Toronto Star; Huffington Post; CANADALAND Podcast; The Manitoban (Online and Print); Cantechletter; Yahoo! News Online; Moncton Free Press (Online); AM900CHML; rabble.ca; openmedia.ca; DSLReports.com; techdirt.com; etc.

Dwayne Roy Winseck
May 2018

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EDUCATION:

1993 Ph.D. Department of Telecommunication and Film, University of Oregon, Eugene, Oregon.

1989 Master of Arts, Communication Studies, University of Windsor, Windsor, Ontario

1988 Honours Bachelor of Arts, Communication Studies, University of Windsor, Windsor, Ontario

TEACHING EXPERIENCE:

07/2009 to Present Professor

10/2000 to 07/2009 Associate Professor

1/1998 to 10/2000 Assistant Professor School of Journalism and Communication (with Joint Appointment to the Institute of Political Economy), 310 St. Patrick's Building, 1125 Colonel By Drive, Ottawa, ON K1S 5B6 Canada

8/1995 to 12/97 Lecturer Centre for Mass Communications Research, University of Leicester, 104 Regent Road, Leicester, LE1 7LT, United Kingdom

8/1994 - 7/1995 Assistant Professor, Department Head Department of Communication and Media Studies, Eastern Mediterranean University, Gazi Magusa, TRNC, via Mersin 10, TURKEY.

8/1993 to 6/1994 Visiting Assistant Professor Department of Communication, Boise State University, Boise, Idaho, U.S.A.

9/1990 to 6/1993 Graduate Teaching Fellow Department of Telecommunication and Film, University of Oregon, Eugene, Oregon, USA.

9/1989 - 7/ 1990 Visiting Instructor Department of International Economics and Trade, Huazhong University of Science and Technology, Wuhan, People's Republic of China.

9/ 1988 - 6/ 1989 Graduate Teaching Assistant, Department of Communication University of Windsor, Windsor, Ontario.

PROFESSIONAL AWARDS & HONOURS

2017 Faculty Graduate Mentoring Award, Faculty of Public Affairs, Carleton University.

2015 Nominated for Capital Educators Award

2014 Public Commentary Award, Faculty of Public Affairs, Carleton University.

2014 Nominated for Teaching Excellence Award, Faculty of Public Affairs, Carleton University.

2013 Mobile Wireless in Canada: Recognizing the Problems and Approaching the Solutions. International Institute of Communication (Canada), 12th Annual Conference, Ottawa Convention Centre November 18-19, 2013

2012 New Zealand's Ultrafast Broadband Plan: Digital Public Works Project for a Network Free Press in the 21st Century or Playfield of Incumbent Interests? Keynote Speaker at the New Zealand Commerce Commission's *The Future with High-Speed Broadband* Conference, Auckland, New Zealand, February 20-21, 2012.

2011 Toward a Critique of the Political Economies of Network Media. Keynote address to the Journalism, Media and Democracy Conference, Auckland University of Technology, Auckland, New Zealand, September 14-16, 2011

2008 Winner of the Canadian Communication Association's G. J. Robinson book of the year award for *Communication and Empire*.

2007 Deepening the Transformation of the Mexican Communications Media Landscape. "Magisterial Lecture" by special invitation of the Profeco, the Consumer Protection Bureau, Government of Mexico, Mexico City, March 15.

BOOKS:

2011 Winseck, D. & Jin, D. Y. (eds.). *Political Economies of Media: the Transformation of the Global Media Industries*. London: Bloomsbury.

2007 Winseck, D. & Pike, R. *Communication and Empire: Media Power and Globalization, 1860-1930*. Durnham, N.C.: Duke Univ. Press. (Winner of the Canadian Communication Association's G. J. Robinson book of the year award)

1998 *ReConvergence: A political economy of telecommunications in Canada*. Cresskill, NJ: Hampton.

1997 Bailie, M. & Winseck, D. (eds.). *Democratizing communication?: Comparative perspectives on information and power*. Cresskill, NJ: Hampton.

1997 Sreberny-Mohammadi, A., Winseck, D., McKenna, J. & Boyd-Barrett, O. (eds.). *Media in Global Context*. London, UK: Edward Arnold.

REFEREED JOURNAL ARTICLES:

2018 Jia, LR & Winseck, D. The political economy of Chinese internet companies: Financialization, concentration and capitalization. *The International Communication Gazette*, *80*(1), 30-59.

2017 Winseck, D. & Pooley, J. A Curious Tale of Economics and Common Carriage (Net Neutrality) at the FCC: A Reply to Faulhaber, Singer, and Urschel. *International Journal of Communication*, *11*, 2702-2733.

2017 The Geopolitical Economy of the Global Internet Infrastructure. *Journal of Information Policy*, *7*, 228-267.

2016 Reconstructing the Political Economy of Communication for the Digital Media Age. *The Political Ecomomy of Communication*, *4*(2), 73-114.

2015 New Zealand's Ultrafast Broadband Plan: Digital Public Works Project for the 21st Century or Playfield of Incumbent Interests? *Media International Australia*, (151), 157-170.

2011 Submarine Telegraphs, Telegraph News, and the Global Financial Crisis of 1873. *Journal of Cultural Economy: Special Issue on Financial Crises edited by M. Poovey*, *5*(2), 197-212.

2010 Winseck, D. Financialization and the "Crisis of the Media": The Rise and Fall of (Some) Media Conglomerates in Canada. *Canadian Journal of Communication*, *35*(3), 1-28.

2009 Winseck, D. & Pike, R. The Global Media and the Empire of Liberal Internationalism, circa 1910-1930. *Media History*, 2009, *15*(2), 31-54. (70/30 contribution)

2008 Information Operations 'Blowback': Communication, Propaganda and Surveillance in the Global War on Terrorism. *International Communication Gazette*, *70*(6), 419-441.

2008 Winseck, D. & Pike, R. Communication and Empire: Media, Markets and Globalization, 1860-1910. *Global Media and Communication*, *4*(1), 7-37. (70/30 contribution).

2008 Media Ownership and the Consolidation of Media Markets. *Sociology Compass*, *2*(1), 34-47.

2004 (Pike, R. & Winseck, D). The politics of global media reform, 1907- 1923. *Media, Culture and Society, 26*(5), 643-675

2002 Illusions of perfect information and fantasies of control in the information society. *New Media and Society*, *4*(1), 89-118.

2002 Netscapes of power: Convergence, consolidation and power in the Canadian mediascape. *Media, Culture & Society*, *24*(6), 795-819.

2001 Winseck, D. and Pike, R. Monopoly's first moment in global electronic communication: From private monopoly to global media reform, circa 1860-1920. *Journal of the Canadian Historical Association*, *10*, 149-183.

2001 The bias of transnational communications: The WTO, Wired Cities and Limited Democracy. *Javnost – The Public*, *7*(4), 17-36.

1999 The quest for information highways and media reconvergence in Canada. *Information*, *1*(6), 477-499.

1999 Telegraphs, online content services and the early history of 'electronic publishers' (1846- 1910). *Media History*, *5*(2), 137-157.

1999 Guo, Z. Z. and Winseck, D. Media technology and the political economy of communication in Canada. *Chinese Journal of Information and Media Sudies*, February (an interview between Winseck and Guo).

1998 Pursuing the holy grail: Information highways and media reconvergence in Britain and Canada. *European Journal of Communication*, *13*(3), 337- 373.

1997 A history and political economy of telecommunications and media reconvergence in Canada. *Canadian Journal of Communication*, 22(2), 217-260.

1997 Contradictions in the democratization of international communication: NAFTA and WTO as vehicles for expanding the free flow of information. *Media, Culture & Society*, *19*(2), 219-246.

1997 Winseck, D. and Cuthbert, M. From communication to democratic norms: Reflections on the normative dimensions of international communication policy. *Gazette* (University of Amsterdam), *59*(1), 1-20.

1995 Power shift?: Towards a political economy of Canadian telecommunication and regulation. *Canadian Journal of Communication*, *20*, 83-106.

1995 A social history of Canadian telecommunications. *Canadian Journal of Communication*, *20*, 143-166.

1991 Winseck, D. and Cuthbert, M. Space WARC: A new regulatory environment for communication satellites? *Gazette* (University of Amsterdam), *47*, 195-203

1991 The Motion Picture Export Association of America: Culture for the world. *Studies in Communication and Culture*, *1*(5), 29-53.

BOOK CHAPTERS:

2018 Beyond Redemption? Or what is the relevance of the International Telecommunications Union in "the Internet Age". In Gabriele Balbi & Andreas Fickers (eds.). ITU as Actor, Arena, and Antenna of longue durée Techno-Diplomacy

2018 Media Concentration in the Age of the Internet and Mobile Phones. In Mark Deuze (ed.). *Making Media: Production, Practices and Professions*. Amsterdam: Amsterdam University Press (forthcoming).

2016 Winseck, D. Political Economy. In K. B. Jensen (ed.). *The International Encyclopedia of Communication Theory and Philosophy* (pp. 1500-1515). Hoboken, NJ: Wiley.

2016 Media Ownership and Concentration in Canada. In. E. Noam (ed.). *Media Concentration Around the World* (pp. 455-493). New York: Oxford University.

2015 Winseck, D. Internet Intermediaries: Neutral Platforms or Power Without Responsibility. In R. Mansell & P. H. Ang (eds.). *The Encyclopedia of Digital Communication and Society* (pp. 1-15). Boston, MA: Wiley- Blackwell.

2014 The Network Media Economy: Triumph of the Media Infrastructure Industries, or Crisis of Media? In Hong, J. H. (eds.). *New Approaches to Media and Communication Studies*. Beijing: Xinhua University.

2013 Critical Tools for Critical Media Research: Media Ownership and Concentration in Canada and the Question of Methods. In I. Wagman & P. Urquhart (eds.). *Culturalindustries.ca*. Toronto: Lorimer.

2013 Weak Links and WikiLeaks: How Control of Critical Internet Resources and Social Media Companies' Business Models Undermine the Networked Free Press. In B. Brevini, A. Hintz & P. McCurdy (eds.). *Beyond Wikileaks: Implications for the Future of Communications, Journalism and Society* (pp. 166-177). London: Palgrave MacMillan.

2012 Globalizing Telecommunications and Media History: Beyond Methodological Nationalism and the Struggle for Control Model of Communication History. In M. Hampf & S. Mueller (eds). *Global*

Communication Electric: Essays on Media and Telecommunications History. Berlin: Freie Universitat (Chapter completed).

2011 Political Economies of the Media and the Transformation of the Global Media Industries: An Introductory Essay. In Winseck, D. & Jin, D. Y. (eds.). *Political Economies of the Media: the Transformation of the Global Media Industries* (pp. 3-48). London: Bloomsbury.

2011 Financialization and the Crisis of the Media: The Rise and Fall of (Some) Media Conglomerates in Canada. In Winseck, D. & Jin, D. Y. (eds.). *Political Economies of the Media: the Transformation of the Global Media Industries* (pp. 142-166). London: Bloomsbury.

2011 A World on Edge and the 'Crisis of the Media'. In L. R. Shade & Marita Moll (eds.). *The Internet Tree: The State of Telecom Policy in Canada 3.0* (pp. 195-206). Ottawa: Canadian Centre for Policy Alternatives.

2011 Media Ownership and the Consolidation of Media Markets. Reprinted in G. Dines & J. M Humes (eds.). *Gender, Race, and Class in Media: A Critical Reader, 3rd. ed*. Thousand Oaks, CA: Sage.

2010 Information Operations "Blowback": Communication, Propaganda and Surveillance in the Global War on Terrorism'. Reprinted in P. Seib (ed.). *War and Conflict Communication*. London: Routledge.

2010 Double-Edged Swords: Communications Media and the Global Financial Crisis of 1873. In P. Putnis, J. Wilke & C. Kaul (eds.) *Communication, News and Globalization: Historical Studies*. Cresskill, NJ: Hampton (forthcoming).

2009 Pike, R. & Winseck D. The Politics of Global Media Reform, 1907-23. Reprinted in P. James (ed.). *Globalization and Culture*. London, Sage. (60/40).

2008 Communications and the Sorrows of Empire: Information Operations 'Blowback' and Surveillance in the Global War on Terrorism. In S. P. Heir and J. Greenberg (eds.). *Surveillance and Social Problems: Canadian Perspectives* (151-168). Blackwood, NS: Fernwood.

2008 The Consolidation of Media Markets. *International Encyclopedia of Communication, Vol.* (pp. 932-937). London: Blackwell Press.

2008 Global Media History. *International Encyclopedia of Communication, Vol. V* (pp. 1975-1980). London: Blackwell Press.

2004 Telegraphs, online content services and the early history of 'electronic publishers' (1846- 1910). In D. Robinson (ed.). *Communication History in Canada* (pp. 53-65). New York: Oxford University.

2004 Pisagjes transnacionales en la red de poder y iudades conectadas: la estructur, la geografia y el gobierno del ciberespacio. In A. M. Celis & E. G. Romere (eds.). *Fronteras En America Del Norte* (pp. 475-496). Mexico: Sage.

2003 Netscapes of power: Convergence, network design, walled gardens and other strategies of control in the information society. In D. Lyon (ed.). *Surveillance, risk and social categorization* (pp. 176-198). London: Routledge.

2002 Telecommunications, new media and global governance. In L. Lievrow (ed.). *Handbook of new media* (pp. 393-409). London: Sage.

2002 Lost in cyberspace: Convergence, consolidation and power in the Canadian mediascape. In P. Attallah & L. Regan Shade (eds.). *Mediascapes: New patterns in Canadian communication* (pp. 325-342). Toronto: Nelson.

2002 Transnational mediaspaces and wired cities: The political economy and governance of telecommunications and new media. In. M. Raboy (ed.). *Global media policy* (pp. 19-38). University of Luton Press.

2002 Mediasaurus. In B. Szuchewycz & J. Sloniowski (eds.). *Canadian communications* (pp. 181-191). Scarborough, Ont.: Prentice Hall.

2001 Illusions of perfect information and fantasies of control in the information society. In M. Pendakur (ed.). *Citizenship in the information age* (pp. 33- 55). Toronto: Garamond.

1999 Telecommunications in Canada. In *Canadian Encylopedia*. Calgary: McClelland & Stewart Inc.

1999 Computer communications. In *Canadian Encylopedia*. Calgary: McClelland & Stewart Inc.

1997 Winseck, D., Boyd-Barrett, J. O., McKenna, J. & Sreberny-Mohammadi, A. Introduction. In Sreberny-Mohammadi, A., Winseck, D., McKenna, J. & Boyd-Barrett, J. O. (eds.). *Media in global context* (pp. ix-xxx). London: Edward Arnold.

1997 Winseck, D. & Cuthbert, M. Communication and democratic norms: Reflections on the normative foundations of international communication policy. In Sreberny-Mohammadi, A., Winseck, D., McKenna, J. & Boyd- Barrett, J. O. (eds.). *Media in global context* (pp. 162-176). London: Edward Arnold.

1997 Bailie, M. & Winseck, D., Public spheres, communication markets and the democratization of communication. In Bailie, M. & Winseck, D. (eds.). D*emocratizing communication?: Comparative perspectives on information and power* (pp. 1-9). USA: Hampton.

1997 Winseck, D. Democratic potentials and instrumental goals in Canadian telecommunications. In Bailie, M. & Winseck, D. (eds.). D*emocratizing communication?: Comparative perspectives on information and power* (pp. 105-134).USA: Hampton.

1997 Winseck, D. The shifting contexts of international communication: Possibilities for a new world information and communication order. In Bailie, M., & Winseck, D. (eds.). D*emocratizing communication?: Comparative perspectives on information and power* (pp. 343-376).USA: Hampton.

1996 Expanding the "free flow of communication" doctrine: NAFTA and GATT as international telecommunication policy. In Vincent, R., Nordenstreng, K. & Traber, M. (eds.). *Towards equity in global communication* (pp. 298- 315). Hampton Press.

1992 Gulf war in the global village: CNN, democracy and the information age. In Wasko, J. and Mosco, V. (eds.). *Democratic communication in the information age* (pp. 60-74). Toronto: Garamond.

TECHNICAL REPORTS

2017 Media and Internet Concentration in Canada, 1984-2016. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp-content/uploads/2015/11/Media_InternetConcentration1984- 2014_for_web.pdf (55pp).

2018 Winseck, D. & Klass, B. Website Blocking, Clogging the Pipes, and Crippling Citizens' Fundamental Communication Rights. CMCRP Submission in response to the Fairplay Coalition's application for website blocking. Submitted before the Canadian Radio-television and Telecommunications Commission, Application 8663-A182-201800467 to disable on-line access to piracy sites (March 29, 2018)(76pp).

2017 Growth of the Network Media Economy in Canada, 1984-2016. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp-content/uploads/2015/11/Growth_of_theNetworkMediaEconomy_in_Cana da1984-2014_Final_Report.pdf (52pp)

2016 Media and Internet Concentration in Canada, 1984-2015. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp-content/uploads/2015/11/Media_InternetConcentration1984- 2014_for_web.pdf (66pp).

2016 Growth of the Network Media Economy in Canada, 1984-2015. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp-content/uploads/2015/11/Growth_of_theNetworkMediaEconomy_in_Cana da1984-2014_Final_Report.pdf (61pp)

2016 Klass, B., Winseck, D., Nanni, M. & Mckelvey, F. (2016). There ain't no such thing as a free lunch: Historical and international perspectives on why common carriage should be a cornerstone of communications policy in the Internet age. CMCR Project's submission to the CRTC's Review of Differential Pricing (CRTC 2016-192). Available at: https://services.crtc.gc.ca/pub/ListeInterventionList/Documents.aspx?ID=2 34586&en=2016-192&dt=i&lang=e&S=C&PA=T&PT=NC&PST=A (Plus responses to interrogatories and oral presentation)(88pp) (author split: 45/45/5/5)

2016 Rethinking Universal Service for the 21st Century and an All-IP World (September 2015) CMCR's first submission to the CRTC's Review of Basic Telecommunications Services (CRTC 2015-134). Available at: https://services.crtc.gc.ca/pub/DocWebBroker/OpenDocument.aspx?DMID =2422175 (Plus responses to interrogatories and oral presentation) (57pp).

2016 Klass, B. & Winseck, D. Why Bell's Bid to Buy MTS is Bad News Report Submitted to the Competition Bureau assessing Bell Canada Enterprises' proposed bid to acquire Manitoba Telecommunications Services. Available at: http://www.cmcrp.org/wp-content/uploads/2016/04/Final-CMCRP- Report-Bell-MTS-Bid-25May16-1.pdf (46pp) (author split 50/50)

2016 From the BDU-Model of TV to Radical Unbundling: Common Carriage & Culture Policy for the Internet Age. Report commissioned by the Canadian Media Fund (62pp).

2017 *Shattered Mirror, Stunted Vision and Squandered Opportunities: A reply to the Public Policy Forum's The Shattered Mirror: News, Democracy and Trust in the Digital Age* (February 9, 2017) (28pp).

2015 Media and Internet Concentration in Canada, 1984-2014. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp-content/uploads/2015/11/Media_InternetConcentration1984- 2014_for_web.pdf (48pp).

2015 Growth of the Network Media Economy in Canada, 1984-2014. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp-

content/uploads/2015/11/Growth_of_theNetworkMediaEconomy_in_Cana da1984-2014_Final_Report.pdf (33pp)

2015 Growth and Concentration Trends in the English-language Network Media Economy in Canada, 2000-2014. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp-content/uploads/2015/12/English_Media_Econ_Concentration_2000- 2014.pdf (41pp).

2015 Development and Concentration Trends in the French language Network Media Economy in Canada, 1984-2012. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp- content/uploads/2015/12/Growth_Concentration_TrendsinFrLangMediaMarkets2015_fortheweb.pdf (35pp).

2014 Media and Internet Concentration in Canada, 1984-2013. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp- content/uploads/2014/12/Media-Internet-Concentration-1984-2013-Full- 4.pdf (34pp).

2014 Growth of the Network Media Economy in Canada, 1984-2013. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp-content/uploads/2014/11/Growth-of-the-Network- Media-Economy-in-Canada-1984-20131.pdf (23pp)

2014 Mobile Wireless in Canada: Recognizing the Problems and Approaching Solutions. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp-content/uploads/2014/03/Mobile-Wireless-in- Canada-Final-Report.pdf (66pp).

2013 Media and Internet Concentration in Canada, 1984-2012. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp- content/uploads/2013/10/Media-and-Internet-Concentration-in-Canada- Report.pdf (25pp)

2013 Growth of the Network Media Economy in Canada, 1984-2012. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/2013/10/15/the-growth-of-the-network-media-economy-in-canada-1984-2012/

2013 Growth and Concentration Trends in the English-language Network Media Economy in Canada, 2000-2012. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp-content/uploads/2013/11/Growth-and-Concentration-Trends-in-the- English-language-Netowrk-Media-Economy-in-Canada-2000-2012-.pdf (15pp).

2013 Development and Concentration Trends in the French language Network Media Economy in Canada, 1984-2012. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/wp- content/uploads/2013/10/Development-and-Concentration-Trends-in-the-French-language-Network-Media-Economy-in-Canada-1984-2012.pdf (11pp).

2012 Media and Internet Concentration in Canada, 1984-2011. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/2012/12/07/the-state-of-media-and-internet-concentration-in-canada-1984-2011/

2012 Growth of the Network Media Economy in Canada, 1984-2011. Canadian Media Concentration Research Project. Available at: http://www.cmcrp.org/2012/11/26/the-growth-of-the-network-media-economy-in-canada-1984-2011/

BOOK REVIEWS/REVIEW ESSAYS

2018 Book Review: Yu Hong (2017). *Networking China: The Digital Transformation of the Chinese Economy*. Urbana, Illinois: University of Illinois, 225pp.

2013 Contribution to a roundtable discussion of Simon Potter's (2012). *Broadcasting Empire*. London: Oxford University. In *Media History*.

2011 Review Essay on Richard R. John's (2010) *Network Nation: Inventing American Telecommunications*. Cambridge, MA: Harvard University Press. *Business History*, *53*.

2009 The Economics of Attention, by Richard A. Latham. In *Journal of Media Ecology*.

2008 *Always Already New: Media History and the Data of Culture*, by Lisa Gitelman. In *Global Media Journal – the Mediterranean Edition*, *3*(1).

2006 Canadian newspaper ownership in the era of convergence, edited by W. C. Soderlund and K. Hildebrandt (2005). In *Canadian Journal of Political Science*, *39*(3), 703-706.

2006 Asian cyberactivism: Freedom of expression and media censorship, edited by S. Gan, J. Gomez & U. Johannen (2004). In *Journal of International Communication*, *12*(2), pp. 95-97.

2006 *The emergent global information policy regime*, edited by S. Braman (2004). In *Global Media and Communication*, *2*(1), 108-111.

2005 *Towards a political economy of culture*, edited by A. Calabrese and C. Sparks (2004). In *Canadian Journal of Communication*, *30*(3).

1999 *The decline and fall of public service broadcasting*, by M. Tracey (1998). *Media, Culture and Society*, *21*(2), 276-278.

1999 *The global media: The new missionaries of global capitalism*, by E. Herman & R. McChesney (1997). *International Journal of Communication*.

1997 *Convergence: Integrating media, information and communication* by T. Baldwin, D. McVoy and C. Steinfield (1996). *The Journal of Information, Law and Technology (JILT) (a refereed journal)*, *97*(3), http://elj.warwick.ac.uk/jilt/issue/1997_3/hitchen.htm

1997 *Communication and the transformation of economics* by R. E. Babe (1995). *Journal of Communication*, *47*(3), 155-158.

CONFERENCE PRESENTATIONS/PAPERS/PUBLIC LECTURES:

2018 Do Giant Internet Platforms Rule the World?: A View from Canada. Paper to be presented at the International Association of Media and Communication Researchers Conference, Eugene, Oregon, June 21-25.

2018 The Rise and Fall of the American Internet?: the Geopolitical Economy of the Global Internet Infrastructure. Presented at the Global Media Forum, Chinese Media & its Global Development, York University, March 15.

2017 The Geopolitical economy of the Global Internet Infrastructure. Presented at the International Exploratory Workshop: Transnational Histories of Telecommunication @ITU. Centre for Contemporary and Digital History, University of Luxembourg. October 18-20.

2017 The Geopolitical economy of the Global Internet Infrastructure. Presented

at the International Association of Media and Communication Researchers, Cartegena, Columbia, July 16-20.

2017 On Method: Studying Concentration in an ever more internet- and mobile wireless-centric media universe. Paper presented at the Blue Sky Policy Research Workshop, International Communication Association Conference, San Diego, USA, May 29.

2016 Winseck, D. From the Empire of Capital and Copper Cables to the Geopolitical Economy of the Global Internet. Paper to be presented at the International Studies Association Conference, Atlanta, GA, March 16-20, 2016.

2015 Winseck, D. From Copper Cable Capitalism to the GeoPolitical Economy of the Global Internet Infrastructure. Paper presented to the *Workshop on Transnational Telecommunications History* at the International Telecommunications Union, Geneva Switzerland, December 17-19.

2015. Winseck, D. Media and Internet Concentration in Canada, 1984 – 2014: The Future of Community Media in the Age of the Internet and Information Abundance. Presented at Community Media Convergence Conference, Carleton University, Ottawa, ON, November 23, 2015.

2015 Winseck, D. Media and Internet Concentration in Canada, 1984 – 2014. Paper presented at the Media Ownership Around the World, Columbia Institute to Tele-Information, Columbia University, New York, October 20th, 2015.

2015 Winseck, D. Concentration Trends and Developments in the Content Media Industries in Canada, 1984 – 2014. Paper presented at Media Ownership Around the World, Columbia Institute to Tele-Information, Columbia University, New York, October 20th, 2015.

2015 Winseck, D. From Copper Cable Capitalism to the Geopolitical Economy of the Global Internet Infrastructure and Info Capitalism. Paper presented to the *Geopolitical Economy Research* Group, University of Manitoba, September 24-25.

2015 Winseck, D. Unbundling Vertical integration: Too Big to Fail or Too Big to Ignore and Mollycoddle? Rebooting Canada's Communications Legislation Conference, Forum for Policy Research and Communication, University of Ottawa, May 23.

2014 More than a Medium: Internet Infrastructure and Journalism. SSHRC- funded workshop hosted at Concordia University journalism professor Lisa Lynch, May 2, 2014, Montreal, QC.

2013 The Network Media Economy as the Triumph of the Media Infrastructure Industries, or the Crisis of Media? Paper presented to the International Association of Media and Communication Researchers, Dublin, Ireland, June 25- 28, 2013.

2013 Return of the State @ the Heart of "New Internet-centric Media Order". Paper presented at the Global Communication and National Policies: The Return of the State preconference of the International Communication Association Conference, June 16, 2013.

2012 (co-author with Ph.D. student, Adeel Khamisa) Rapporteurs's Report: the Orbicom – IDRC Workshop on Digital Transformations, Montreal, Quebec, Canada January 12 – 14, 2012

2011 Toward a Critique of the Political Economies of Network Media. Paper presented to the Political Economy Section of the International Association of Media and Communication Researchers, Istanbul, Turkey, July 13-17, 2011

2011 From the Geopolitics of Imperialism to the Empire of Capital: Communication Media and the Global Financial Crisis of 1873. Invited paper presented at the Global Communication Electric Conference, John F. Kennedy Institute, Freie Universität Berlin, Museum of Communication, February 18 – 19, 2011.

2011 The International Media Concentration Research Project: Issues and the State of Media Concentration in Canada, 1984 – 2010. Paper presented at the Media Concentration Around the World Conference, Paris, France, January 21st and 22nd, 2011.

2010 Concentration and the Network Media Industries in Canada: A Presentation of Findings from the International Media Concentration Research Project. *Telecommunications Policy Research Conference*, Arlington, VA, October 19-22.

2010 Financialization and the Crisis of the Media: The Rise and Fall of (Some) Media Conglomerates in Canada. Paper presented at the International Association of Media and Communication Researchers, Braga, Portugal, July 19-24.

2010 Double-Edged Swords: Communications Media and the Global Financial Crisis of 1873. Paper presented at the International Association of Media and Communication Researchers, Braga, Portugal, July 19-24.

2009 Globalizing Telecoms and Media Histories: Beyond Methodological Nationalism and the Struggle for Control Model of Communication History. Invited Paper to be presented to the "Telecommunication and Globalization: Information Flows in the Nineteenth and Early Twentieth Century" Conference. University of Heidelberg, Heidelberg Germany. September 25-28, 2009.

2009 Communication and Empire: A Critique of 'Conventional Knowledge' and an Outline of a New Theoretical Approach to Global Media History. Presented to the Media History section of the International Communication Association, Chicago, USA, May 21-25, 2009.

2008 Communications Media and Global Orders: Media, Markets and Empires – Past and Present. *Keynote Address* to the First Global Media Journal Symposium, University of Ottawa, November 14, 2008.

2008 Information Operations Blowback: Retooling Communication Networks and the Entertainment Media for National Security and 'Global War'. Paper presented to the Political Economy section of the International Association of Media and Communication Researchers, Stockholm, Sweden, July 20-24.

2008 Communication and Empire: A Critique of 'Conventional Knowledge' and an Outline of a New Theoretical Approach to Global Media History. Paper presented to the Media History section of the International Association of Media and Communication Researchers, Stockholm, Sweden, July 20-24.

2007 Deepening the Transformation of the Mexican Communications Media Landscape. "Magisterial Lecture" by special invitation of the Profeco, the Consumer Protection Bureau, Government of Mexico, Mexico City, March 15.

2007 The Global Media and the Age of Empire, 1860-1910. Paper presented at the presented to the Media History section of the International Association of Media and Communication Researchers, Paris, France, July 23-25.

2005 Global Media Mergers and the Empire of Liberal Internationalism. Invited paper presentation (with Professor Robert Pike) for the European Business Historian's Association, Copenhagen, Denmark, August 15-19.

2004 Communication and Empire: Media Markets, Power and Globalisation, 1860-1930. Paper presented presented to the Media History section of the International Association of Media and Communication Researchers, Porto Allegre, Brazil, July 26-30.

2004 Communication and Empire: Rethinking and Revising the History of the Global Media. Invited paper presentation (with Professor Robert Pike) for the Policy History Conference, St. Louis, Missouri, May 20-23, 2004.

2003 Wild Competition, Managed Change and Netscapes of Power: The forces shaping Telecommunications and New Media in Canada. Invited paper presentation to the ETIC Working Group on Telecommunications, University of Quebec at Montreal, Montreal, April 17, 2003.

2002 The Politics of Global Media Reform, 1907-1923 (co-authored with Robert Pike, Professor Emeritus, Queen's University) Paper presented to the Media History section of the International Association of Media and Communication Researchers, Barcelona, Spain, July 19-22.

2001 Wired Cities, Transnational Communication and the Reconfiguration of Geography and Borders. Paper presented at the *Border Crossings Conference*, National Autonomous University, Mexico City, Mexico, July 3- 5.

2001 Lost in cyberspace: Convergence, Consolidation and Power in the Canadian Mediascape. Keynote Addresss at the Annual Conference of the Communication, Energy and Paperworkers union, Edmonton, Alberta, March 30th.

2001Netscapes of power: Convergence, network design, walled gardens and other strategies of control in the information society. Paper presented to the *Surveillance, risk and social categorization* conference, Queen's University, Kingston, May 3-5, 2001.

2001 Cyberspace redesign, 2.0: Regulating and shaping the future of the Net. Paper presented at the Union for Democratic Communication's *Democratic Communication in a Branded World* conference, Carleton University, Ottawa, May 17-19, 2001.

2001 Cyberspace redesign, 2.0: Regulating and shaping the future of the Net. Paper presented at the Canadian Communication Association Annual Conference, Quebec City, May 27-30, 2001.

2000 Telecommunications, new media and global governance. Keynote Address to the British Columbia Library Association Conference on Information Policy, *Globalization, media and cultural diversity*, April 7-10.

2000 Controlling designs: Media architectures, markets and the regulation of information abundance. Paper presented at the International Association of Mass Communications Researchers, Singapore, July 18-21st, 2000.

1999 Illusions of perfect information and fantasies of control in the information society. Paper presented at the Citizens at the Cross-roads: Whose Information Society Conference, University of Western Ontario, London, Ontario, October 22, 1999.

1999 Illusions of perfect information and fantasies of control in the information society. Paper presented at the Union for Democratic Communication, University of Oregon, Eugene, Oregon, USA, October 15, 1999.

1999 The political economy of new and old media in an information society. Roundtable presentation at the Union for Democratic Communication, University of Oregon, Eugene, Oregon, USA, October 14, 1999.

1999 Discussant for the Globalization Team Roundtable, A Project on Trends and a Joint Initiative of the Policy Research Secretariat and the Social Science and Humanities Research Council, Ottawa, September 17, 1999.

1999 Communication, convergence and the crisis of democracy. Invited Public Lecture given at the Canadian Library Association Annual Conference, Toronto, Ontario, June 17.

1999 Monopoly's first moment in global electronic communication: From private monopoly to global media reform, circa 1860-1920 (co-authored with Dr. Robert Pike). Paper presented at the Canadian Historical Association Conference, Sherbrooke Quebec, June 7.

1998 Pursuing the holygrail: Information highways and media reconvergence in Britain and Canada. Paper presented to the Communication, Technology and Policy section of the International Association of Mass Communication Researchers in Glasgow, Scotland, July 26-30.

1998 Pursuing the holy grail: Information highways and media reconvergence in Canada. Paper presented at the Canadian Communication Association's Annual Conference, Communication, the Public Good and Civic Culture, May 31 to June 3.

1996 Canadian telecommunications: A history and political economy of media reconvergence. Paper presented to Political Economy section of the International Association of Mass Communication Researchers, Sydney, Australia, August 18-22.

1994 From UNESCO and the ITU to NAFTA and GATT: International trading regimes in communication as validation of the U.S., U.K and Singapore's decisions to withdraw from UNESCO. Paper presented to the 6th Annual Macbride Roundtable at the University of Hawaii, Monoa, January 20-23.

1994 Cuthbert, M. & Winseck, D. Normative considerations in international communication policy. Paper presented to the 11th Intercultural and International Communication Conference. University of Miami, School of Communication, February 3-5.

1994 Prospects for global communication equity after GATT. Invited paper for the International Law and Policy section of the International Association of Mass Communication Researchers, Seoul, Korea, July, 1994.

WORK IN PROGRESS

Director, the Canadian Media Concentration Research Project, School of Journalism and Communication, Carleton University, Ottawa, Canada < cmcrp.org >

Wilkinson, S. & Winseck, D. Whither Journalism? Crisis or Wrenching Change in Journalistic Work in Canada? Paper submitted to *Journalism Studies* for review (author split 70/30).

GRADUATE SUPERVISIONS

Current: 2 MA, 2 Ph.D. MA Supervisions completed since 2009: 11

Ph.D. Supervisions: 2 Ph.D. External examiner: 9

PUBLIC/POPULAR MEDIA CONTRIBUTIONS Video:

- BNN (November 23, 2017). Why Canadian telecoms may pressure Ottawa after US repeals Net Neutrality.
- BNN (April 20, 2017). CRTC rules in favour of net-neutrality.
- CBC Network News (February 15, 2017). Telecom takeover: regulators approve BCE's $3.1B takeover of MTS.
- CTV News (December 22, 2016). CRTC declares broadband internet a basic service.
- CMCR Oral Presentation to CRTC Hearing on Whether Affordable Broadband Internet should be available to all Canadians (April 11, 2016)
- BNN News (January 29, 2015). Implications of CRTC New Rules.
- CTV News (October 6, 2014). $316M Postmedia deal: Can both brands survive?
- Global News (September 23, 2014). Shaw Media announces proposal for 24-hour channel Global News 1.
- Brownell, C. (September 20, 2014). It's the hottest drama on TV: the CRTC clashes with the online future. *Financial Post*.
- CTV National News (September 10, 2014). Future of Television.
- Global TV (September 9, 2014). Impact of CRTC Let's Talk TV Discussions.
- Debate between Jeffrey Church, Martin Masse and Dwayne Winseck - How Competitive is Canada's Telecom Sector? International Institute of Communication Annual Conference, November 18, 2013, Ottawa Congress Centre, Ottawa, Canada. http://www.cpac.ca/en/programs/public-record/episodes/28624782/

- Interview with Dwayne Winseck on the CBC's Lang and O'Leary show, August 17, 2012. http://www.youtube.com/watch?feature=player_embedded&v=_V- XTHluIks
- *Unlawful Access: Canadian Experts on the State of Cyber-Surveillance* Video co-produced by the Digitally Mediated Surveillance (DMS, Queens University) research project and the New Transparency project (University of Toronto) (2011). http://vimeo.com/29208533

Audio:

- Catherine Tait appointed as new CEO/President of CBC. *CBC Radio– Saskatchewan* (April 4, 2018).
- Netflix losing customers. CBC business reporter Kate MacNamara (July 19, 2016).
- A more accessible internet for Canadians? Policy Options Podcast #10 with Alex Shadeed, Institute for Research and Public Policy**.** (May 3, 2016).
- Whither journalism in Canada? Interview with Marc Mongomery, RCInet (March 2, 2016).
- Expert testimony to Canadian Heritage Parliamentary Committee study of the media and local communities (@ 9 hr 9min 30 secs)(February 25, 2016).
- Postmedia Combine News Rooms in Cities across Canada. CBC Ottawa Morning with Robyn Bresnahan (January 20, 2016).
- Impact of combining Postmedia and Sun Newspaper Operations in Ottawa and other Cities Across Canada. Interview with Ed Hand at 1310 AM Ottawa (January 20, 2016).
- Corus Acquires Shaw Media. Interview with CBC Radio Vancouver (January 13, 2016).
- All in a Day with Paul Haarvardsrud + Allan Neil. CBC (November 10, 2015).
- Federal Election 2015: Scrutinizing newspaper political endorsements. CBC's The Current (October 9, 2015).
- Interview with CBC's As it Happens on Bell Media president's intervention in CTV, BNN news coverage (March 25, 2015).
- Interview with Radio Canada International's Marc Montgomery. Media Concentration in Canada: new study provides facts (January 6, 2015).
- Interview with CBC Montreal's Shawn Apel on Netflix vs. CRTC over the question of confidential information and possible regulation of OTT Television (September 24, 2014).
- Professor Dwayne Winseck delivers a blistering indictment of Bell, Rogers, and Telus: it's an attack that may have gotten him briefly kicked off Twitter. Interview with Jesse Brown at *CanadaLand* (December 2, 2013). http://canadalandshow.com/wireless-wars/
- Canadian Wireless Telecommunications Association (CWTA) President and CEO Bernard Lord Debates State of Canada's Mobile Wireless Market with CMCR Project Director Dwayne Winseck. 1310 News Ottawa (Rogers). November 27, 2013. Waiting for Audio clip.

- Throne Speech announces cable unbundling/pick-and-pay model for cable tv. CBC morning radio (Halifax, Kitchener-Waterloo, Guelph, Cornerbrook, Yellowknife, Winnipeg, Saskatoon, Sudbury, Kamloops, Victoria). Audio clip from CBC Saskatoon http://www.cbc.ca/player/News/ID/2412767986/
- What does Bell Canada's bid to takeover Astral Media mean for consumers? *The Current*, September 12, 2012. http://www.cbc.ca/thecurrent/episode/2012/09/12/what-does-bell-canadas-bid-to-take-over-astral-media-mean-for-consumers/

Press/Online News

- Jackson, E. (April 9, 2018). Corus defends strategy despite stock price woes. *National Post.*
- Cain, P. (April 5, 2018). Canada flagged Facebook's third-party app privacy problem way back in 2009. *Global TV*.
- Newton, C. (Dec. 15, 2017). What is net neutrality and why it matters, *Al Jazeera*.
- Armiak, D. (July 6, 2017). New Study Undercuts Trump FCC Chair's Justification for Rolling Back Net Neutrality.
- McCarthy, K. (July 3, 2017). America's net neutrality rage hits academia: Corporate shill allegations spark furious response. *The Register*.
- Jackson, E. (June 27, 2017). Rogers and Telus step up wireless promotions to counter serious threat from Freedom Mobile. *National Post*.
- Krashinsky Robertson, S. (June 15, 2017). Report details recommendations for sustainable funding of Canadian media. *Globe and Mail*.
- Brousseau-Pouliot, V. (June 14, 201y7). Les dates importantes du Regne de Jean-Pierre Blais: Un mandat pro-consommateur. La Presse+
- Klym, N. (May 18, 2017). Jean-Pierre Blais at MIT. Internet Policy Research Initiative at the *MITBlog*.
- Internet Society of Canada (May 9, 2017). Net-heads rejoice!: The Canadian branch of the Internet Society salutes the CRTC's Internet Policy Decision. *Internet Society Canada* blog.
- Layton, R. (May 1, 2017). What Canadians Should Know About The CRTC's Internet Decision. *Huffington Post.*
- Jackson, E. (April 28, 2017). Why Canada is dragging its feet on the next spectrum auction while demand keeps growing. *Financial Post*.
- McCarthy, K. (April 25, 2017). A very Canadian approach: how net neutrality rules reflect a country's true nature. The *Register*.
- Marowitz, R. (April 18, 2017). Transcontinental puts newspapers in Quebec and Ontario up for sale. *Globe and Mail* (Canadian Press).

- Watson, H. G. (March 6, 2017). The Canadian newspaper industry is getting a new jolt of life. *Editor and Publisher*.
- Selley, C. (February 26, 2017). Conservatives at war with conservatism on display at Manning Centre conference. *National Post*.
- Evelyn, C. (February 25, 2017). CBC 'dimmer star' in media landscape, conservative event hears. *The Wire Report* (paywalled)
- O'Malley, K. (February 24, 2017). Manning Manifests: CBC a prime target as conference winds down. *Macleans*.
- Britneff, B. (February 14, 2017). Liberal MPs grill Competition Bureau over Postmedia-Sun deal. *iPolitics*.
- Britneff, B. (February 12, 2017). Public Policy Forum report on media crisis 'flawed': professor. *iPolitics*.
- Horgan, C. (February 1, 2017). The cost of journalism. *Article Magazine*.
- Watson, H. G. (January 26, 2017). Six key takeaways from the Public Policy Forum's report on media. *J-Source*.
- Isreal, S. (January 18, 2017). Bell Canada raising prices on home internet, TV in February. *CBC*
- Kupfer, M. (December 21, 2016). CRTC declares broadband internet access a basic service. *CBC*.
- Brousseau-Pouliot, V. (December 22, 2016) Le CRTC vise l'accès à la haute vitesse pour tous. *La Presse+*
- Morrison, I. (December 6, 2016). Local media and the democracy deficit. *Policy Options*.
- Klass, B. (November 29, 2016). Once Manitoba Telecom Services sold, there's no hitting 'redial'. *Winnipeg Free Press*.
- Wood, E. (November 22, 2016). Google and Facebook receive almost two-thirds of online ad revenue, study finds. *Itbusiness.ca.*
- Jackson, E. (October 31, 2016). Telecoms, consumer advocates face off over Internet data pricing and date usage caps. *Financial Post*.
- Dobby, C. (October 30, 2016). CRTC to review differential pricing practices on Internet service. *Globe & Mail*.
- Jackson, E. (October 25, 2016). Broadcasting revenues dip as Canadians move online for radio and television: CRTC. *Financial Post*.
- Nowak, P. (October 14, 2016). Trump hires Bell, Telus consultant for advice. *Alphabeatic*.
- Evelyn, C. (June 23, 2016). 'Separate silo' approach to regulation wrong- footed in internet age: report. *The Wire Report*.

- Chung, E. (June 2, 2016). Google, Canadian media outlets launch AMP websites. *CBC News*.
- Nowak, P. (May 20, 2016). Facebook bias scandal: New media giants deal with traditional media problem. *CBC News*.
- Jackson, E. (May 19, 2016). They're right on our doorstep: SaskTel orders risk report after Bell buys MTS. *Financial Post*.
- Bell-MTS deal weakens Rogers' ability to compete: academics. *The Wire Report* (May 26, 2015).
- Cash, M. (May 18, 2016). Wireless rates already rising. *Winnipeg Free Press*.
- Libin, Kevin (April 4, 2016). The ugly side of skinny cable: Why the CRTC got this file wrong again. *Financial Post*.
- Harris, S. (March 3, 2016). $25 'skinny' TV packages called a 'ripoff' as industry 'stares down' CRTC. *CBC*.
- Abma, S. (March 1, 2016). Will 'skinny packages' tempt cable customers to stay connected? CBC.
- White, A. (March 1, 2016). Canada takes first step in national fight against cord cutting. *Paste Magazine*.
- Vlessing, E. (February 29, 2016). Canada's Great Cable Unbundling. *The Hollywood Reporter*.
- Watson, H. G. (February 29, 2016). Media concentration in Canada climbs as news rooms shrink. *J-Source.*
- Reynolds, C. (February 29, 2016). Bell's TV starter package is now only $25 -- but will anyone want it? *Toronto Star*.
- Democracy warning as Canadian media merge and newspapers close (February 24, 2016). *The Guardian*.
- Shufelt, T. & Dobby, C. (January 25, 2016). *Guelph Mercury* newspaper to close amid financial pressures. *Globe and Mail.*
- Postmedia-Sun merger 'foolishly' accepted by Competition Bureau, prof says (January 20, 2016). *CBC News Ottawa*.
- Bjornson, L. (December 5, 2015). Niche ethnic media struggle to compete. *New Canadian Media*.
- Livesey, B. (November 27, 2017). Postmedia empire falters while CEO Paul Godfrey earns millions. *Toronto Star*.
- Livesey, Bruce (November 24, 2015). The tawdry fall of the Postmedia newspaper empire. *National Observer*.
- Shaw, G. (November 24, 2015). Netflix, shomi, Crave TV: Choosing the streaming service that best for you. *Financial Post*.

- Harris, M. (November 12, 2015). Citizen Shame: Politics, Paul Godfrey and Postmedia's humiliation. *iPolitics*.
- Tencer, D. (November 10, 2015). Canada's Newspapers Were In The Tank For Harper, Media Analysis Finds. Huffington Post.
- Barber, J. (November 1, 2015). Election deals blow to Canada's dominant press group. *The Guardian*.
- McGee, C. (October 21, 2015). Do editorial endorsements matter? Ryerson Review of Journalism.
- Buckler, G. (July 8, 2015). Does Media Ownership Matter. Canadian Journalists for Freedom of Expression.
- Desjardins, L. (March 25, 2015). Corporation executive interferes in news coverage. Radio-Canada International.
- Gallant, J. (March 25, 2015). Bell Media president apologizes for intervening in CTV news coverage. *Toronto Star*.
- Nowak, P. (February 11, 2015). Canada's looming streaming video showdown. *Canadian Business*.
- Myers, C. (2014-2015). The Business of Media. Canadian Media Directors Council. Toronto: Rogers.
- Levinson King, R. (February 2, 2015). Canadian viewers will get to see U.S. ads during 2017 Super Bowl: In bold speech, CRTC comes out in favour of network neutrality, Super Bowl ads and free TV. *Toronto Star.*
- Montgomery, M. (January 6, 2015). Media concentration in Canada: new study provides facts. Radio-Canada International.
- Mills, C. (November 17, 2014). TC Media sells 15 consumer magazines to TVA, including *Canadian Living* and *The Hockey News*. J-Source.ca.
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Public Lectures and Workshops:

- Media and Internet Concentration in Canada, 1984-2016. National University of Quilmes, Buenos Aires, Argentina, November 28, 2016.

- Workshop on Media Industries Research Methods. National University of Quilmes, Buenos Aires, Argentina, November 23, 2016.

- Common Carriage and Cultural Policy for an Internet- and Mobile Wireless-Centric World. Public talk to the Facultad de Ciencias Sociales, Universidad de la Republica, Uruguay. Constituyente 1502 Montevideo, November 22, 2016.

- A Political Economy of Communication for an Evermore Internet- and Mobile Wireless-Centric World. Presentation to the School of Journalism and Communication, Fudan University, Shanghai, China, November 10, 2016.

- A Political Economy of Communication for an Evermore Internet- and Mobile Wireless-Centric World. Presentation to the Academy for International Communication of Chinese Culture, Beijing Normal University, Beijing, China, October 27, 2016.
- Communication and Empire: Media, Markets, Power and Globalization, circa the late-19th and early-20th Centuries – Implications for Today? Presentation to the Academy for International Communication of Chinese Culture, Beijing Normal University, Beijing, China, October 27, 2016.
- State of Media and Internet Concentration in Canada, 1984 - 2014 @ University of Ottawa, Desmarais Building, Room 1140, November 1, 2015. Hosted by Professor Daniel Pare https://www.dropbox.com/s/6c4lvs5rgz9wfp1/Winseck%20UO%20A nnouncement.pdf
- Mobile Wireless in Canada: Recognizing the Problems and Approaching Solutions. PPT Slides for Presentation to Panel on How Competitive is Canada's Telecom Sector at the International Institute of Communication Annual Conference, November 18, 2013, Ottawa Congress Centre, Ottawa, Canada.
- State of Media and Internet Concentration in Canada, 1984 - 2011 @ University of Ottawa, Desmarais Building, Room 1140, February 13, 2013. Hosted by Professor Daniel Pare https://www.dropbox.com/s/6c4lvs5rgz9wfp1/Winseck%20UO%20A nnouncement.pdf

UNPUBLISHED WORK:

1993: A study of the (de) regulatory process in Canadian telecommunication: Labour struggles and the public interest. Ph.D. Dissertation, University of Oregon, Eugene, Oregon.

1989 Towards a new satellite regulatory regime: Is there equity in the global village? Masters Thesis, University of Windsor, Ontario.

GRANTS

2012 Social Sciences and Humanities Research Council Insight Grant for "Canadian Media Concentration Research Project" ($234,523).

2006 Dean of Faculty of Public Affairs and Vice-President Research and International Award in Support of SSHRC Category 4A Applicants for the project: Communication and the Crisis of Globalism, 1860-1930 ($10,000).

2004 Faculty of Graduate Studies and Research Grant, Carleton University, for research project entitled, "Communication and Empire" ($4,500).

2000 Social Sciences and Humanities Research Council for the project:

Electronic empires and wired worlds: Electronic media and the foundations of globalization, circa 1860-1920 (Co-researcher: Dr. Robert Pike) ($78,500).

1999 Faculty of Graduate Studies and Research Grant, Carleton University, for research project entitled, "Electronic Media and the Foundations of Globalization" ($5,000).

1998 Faculty of Graduate Studies and Research Grant, Carleton University, for research project entitled, "Electronic Media and the Foundations of Globalization" ($5,000).

1997 Faculty of Social Sciences Grant, University of Leicester, for research on Canadian telecommunications ($4,800).

1996 Faculty of Social Sciences Grant, University of Leicester, for research on Canadian telecommunications ($3,600).

1993 School of Journalism and Communication Award for the Best Doctoral Dissertation, School of Journalism and Communication, University of Oregon, Eugene, Oregon.

1991 University of Oregon Merit Award, Graduate Studies, University of Oregon, Eugene, Oregon.

1991-4 Graduate Teaching Fellow. University of Oregon. Department of Telecommunication and Film, University of Oregon, Eugene, Oregon.

OTHER PROFESSIONAL ACCOMPLISHMENTS

2017 The State of the increasingly internet- and mobile wireless-centric media in Canada, 1984 – 2014. Paper to be presented to the 42nd Annual Congress of the Association of Quebec Economists, Gatineau, QC, May 18.

2017 The CBC's Place and Role in the Networked Media Universe. Presented at the Manning Centre Conference, Ottawa, Canada, February 25.

2016 Media and Internet Concentration in Canada, 1984 – 2014 and the Information, Communication and Media Needs of Canadians. Expert testimony to the Standing Parliamentary Committee on Canadian Heritage, Ottawa, Canada, February 25.

2015 Experts Panel for the Evaluation of the Canadian Periodical Fund, Ministry of Canadian Heritage.

2014 Guest instructor at Centre for Communication, Media and Information Technologies' Summer School, Aalborg University, Copenhagen, Denmark, August 19-24.

2013 Expert Witness. Written brief and testimony for the Public Interest Advocacy Centre in the matter of Bell Canada Enterprise's Second Bid to Purchase Astral Media Hearings before the Canadian Radio-television and Telecommunications Commission, Montreal, Quebec, May 2013.

2012 Expert Witness. Written brief and testimony for the Public Interest Advocacy Centre in the matter of Bell Canada Enterprise's Bid to Purchase Astral Media Hearings before the Canadian Radio-television and Telecommunications Commission, Montreal, Quebec, September 2012.

PROFESSIONAL MEMBERSHIPS:

International Association of Mass Communication Researchers. Canadian Communication Association International Studies Association

SERVICE:

2018 Member of the advisory search committee for the selection of new Associate Dean, Students and Enrolment.

2017-Present Faculty Board, Kroeger College Representative 2017-Present Editorial Board Member, *The Information Society*. 2016-Present Faculty of Public Affairs Public Commentary Adjudication

Committee. 2016-Present CCA/CRTC Student Prize Adjudication Committee

2016 Speakers' Series Coordinator, School of Journalism and Communication.

2016 Hiring Committee, School of Journalism and Communication, Carleton University

2015 Faculty of Public Affairs Public Commentary Adjudication Committee.

2015 Undergraduate Curriculum Review Committee.

2015 Academic oversight committee for the SSHRC supported Community Media Convergence Policy Working Group.

2015 Speakers' Series C-coordinator (with Merlyna Lim), School of Journalism and Communication.

2014 Tenure and Promotions Committee, School of Journalism and Communication

2013-Present Editorial Board Member. *Journal of the Political Economy of Communication*.

2012-Present Editorial Board Member. *Canadian Journal of Communication*

2011-2012 Elected member of the Board of Directors, the National Press Club Foundation of Canada.

2011-Present Editorial Board Member, *tripleC (cognition, communication, co-operation): Journal for a Global Sustainable Information Society*.

2010 Hiring Committee, School of Journalism and Communication, Carleton University

2007-Present Editorial Board Member, *Compass (Sociology*

2006-Present *)* Editorial Board Member, *Global Media Studies Journal*

2007 Hiring Committee, School of Journalism and Communication, Carleton University

2006-Present Member of the Ontario Graduate Scholarship Selection Committee

2005/6 Member of the Computing and Computing Services Advisory Committee, Public Affairs and Management.

2005/6 Tenure and Promotion Review Committee (Representing Institute of Political Economy).

2000 to Present Research Grant Application Reviewer for Social Sciences and Humanities Research Council (Canada).

1997 to Present Reviewer for *Media, Culture and Society*, *Global Media and Communication*, *Global Media Journal*, *Journal of Information Technology and Law*, *Journal of International Communication*, *Canadian Journal of Communication*, *Media History*, *Gazette: International Journal of* Communication; *European Journal of Communication*.

1999 to 2002 Member of the Manor Park and Hopewell Public School Councils and Representative to the Ottawa Carleton School Board

1998 to 2003 JCAS Committee Member, Carleton University

1998 to 1999 Hiring Committee, School of Journalism and Communication, Carleton University

1998 to 2003 Graduate School Admittance Committee, School of Journalism and Communication, Carleton University

1998 to 2000 Consultant to the MA in Mass Communication by Distance Learning offered by the Centre for Mass Communication Research, Leicester University.

1997 to 1998 External Examiner for Mass Communications, Bath College of Higher Education, Bath, UK.

1994 to 1996 Reviewer for the *Journal of Broadcasting and Electronic Media*.

1994/5 Advisor to Student Radio at Eastern Mediterranean University.

08/ 1994- 1995 Department Head, Department of Communication and Media Studies, Eastern Mediterranean University, Gazi Magusa,TRNC, via Mersin 10, TURKEY.

Responsibilities included:

Design and implement communication and media studies program.

03/1991-06/1993 Editorial advisor, *Studies in communication and culture*, University of Oregon, Eugene, Oregon.

Responsibilities included:

Solicit articles for publication, decide journal format and review and edit submissions for the journal.

06/1987-09/1988 Public Liaison Officer, Windsor's Olde Towne, Windsor, Ontario

Responsibilities included:

Preparing promotional and information brochures Direct public and government fund-raising Survey available federal, provincial and municipal funding opportunities Prepare presentations to city council and news releases.

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